

THE  
English Improover,  
OR A NEW  
Survey of Husbandry.

Discovering to the Kingdome, That  
some Land, both Arable and Pasture, may be Ad-  
vanced Double or Treeble; Other Land to a Five or Ten-  
fold: and some to a twenty fold Improvement: Yea,  
some now not worth above One, or Two shillings per Acre,  
be made worth Thirty, or Forty, if not more.

Clearly demonstrated from Principles of sound Reason, Inge-  
nuity, and late, but most certaine Reall Experiences.

*Held forth under six Peeces of Improvement.*

- Viz.* {
1. By Floating or watering such Lands as are capable thereof.
  2. By Reducing Boggy or Drowned Land to sound Pasture.
  3. By such a way of Ploughing and Corneing old Courser Pasture, as not to Impo-  
verish it; And by such a Method of Enclosure, as shall provide for Poore.  
And all Interests without Depopulation.
  4. By discovering divers Materials for Soyle and Compost, with the nature and  
use of them, as both Tillage and Pasture be advanced as high as promised.
  5. By such a New Plantation of divers sorts of woods, as in two years, they shall  
rise more than in forty years naturally.
  6. By a more Moderate Improvement of other sorts of Lands, according to  
their Capacities they lye under, by more Common Experience.

By *Walter Blith* a Lover of Ingenuity,


P. 21. 5. The thoughts of the diligent brings abundance. A diligent man stands before kings.  
Eccles. 9 10. All therefore that thy hands shall find to doe, do it with all thy power, for  
there is neither wisdom nor knowledge in the grave whither thou goest.

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**G**O tell the World, of Wealth that's got with ease,  
Of certaine Profit (gaine most men doth please)  
Of Lands Improvement to a Treeble worth,  
A Five, a Ten-fold Plenty's here held forth;  
The greedy Land-Lord may himselfe suffice;  
The toying Tenant to Estate may rise,  
The poore may be enricht, England supply'd  
For twice so many People to provide;  
Though this a Paradox may seeme to you,  
Experience and reason proves it true;  
By floating Dry, and purging Bogg y Land,  
The Plough, old Pasture betters to your hand;  
Directions to Inclose, to all mens gaine,  
Minerals found out, Land rich'd with little paine;  
Woods ordered so, in few years yeeld such store,  
So large, so good, as you'le desire no more.  
In fire, all Land in each Capacity,  
In which it lyes, made Pleasant to your eye.



To the Author.

**T**He way is now my friend thou seem'st to goe,  
We should encourage Art; But thou must know  
Thou'lt meet with Criticks; and back-biting foes,  
Badmen the best of Works will still oppose:  
If but what only pleaseth all mens sight  
Should come abroad, no Worke should come to light,  
God is made better by Community,  
It's Publick good, to quicken Industry.  
Thou'lt spent thy Time, thy Paines with great Expence  
On Countries Good, for Love, not Recompence;  
Let others Reade, I'll labour what I can  
To imitate this compleat Husbandman.

A true Friend to thee,  
as thou to all,

P.W.

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To thole of the High and Honourable Houses of  
Parliament, whose vacancies from the great Businesse  
of the Kingdome will admit the Reading.

RIGHT HONOURABLE,



I chuse rather to cast my selfe at Your Lordships Feet and  
come under Your greatest Censure for this high Pre-  
sumption, than to omit so necessary a Duty and Dis-  
covery as the substance of this Discourse imports;  
Therefore dare not conceale the least inconvenience  
that may befall the Publike, in your not apprehending  
the Prejudices hindring Improvement, nor your owne capacities to remove  
them: And though I dare not present this Treatise unto Your Honours, be-  
cause of the Rudenesse and weaknesse of it, to crave so high Patronage, yet  
I shall adventure these my most humble Representations of some Prejudices  
that remaine founded by a Law; And of some other Obstacles, as firmly  
rooted by Corruption, that without Your Honours Power, and Wisdomes  
helps therein, the Improvements here tendered will be in great measure hin-  
dered.

To which if Your Honours shall see cause to give Incouragement either  
by an Addition of such Lawes as shall appeare, unto you wanting or Repea-  
ling such as hinder, I shall not question but mens spirits will be raised to  
such Experimenting of the Principles of Ingenuity, as that we may see this  
Kingdome soone raised to her utmost fruitfulnessse and greatest glory.

The particulars are too many here to discourse at large; I shall therefore  
take boldnesse to present some few with some brieffe Reasons to evince the  
same; and they are very great discouragements to the ingenious and a lively  
Prosecution of the Improvements of the Kingdome.

The first Prejudice is, That if a Tenant be at never so great paines or  
cost for the Improvement of his Land, he doth thereby but occasion a greater  
burden upon himselfe. or else invests his Land lord into his cost and labour  
gratis, or at best lies at his Land-Lords mercy for requitall; which occa-  
sions



sions a neglect of all good Husbandry, to his owne, the Land, the Land-Lord, and the Kingdomes suffering. Now this I humbly conceive may be removed, if there were a Law enacted, whereby every Land-Lord should be obliged, either to give him reasonable allowance for his cleare Improvement, or else suffer him or his to enjoy it so much longer as till he hath had a proportionable requitall of which the Tenant being secured, he would att Ingenuity with violence as upon his owne and draw forth the Earth to yeeld her utmost fruitfulnessse; which once being wrought unto perfection, will easily be maintained and kept up at the height of fruitfulnessse, which will be the Kingdomes great advantage: Some Tenants have advanced Land from twenty pounds to forty, and depending upon the Land-Lords favour have bene wipt of all; and many Farmes by this uncertainty have bene impoverished and left under great disgrace, which might as well have bene advanced

The second Prejudice is against that great Improvement by floating Lands which exposeth the Improver to suit of Law for Turning a Water-course by Millers or others, which are minded to molest the Improvement although the Improvement be ten fold greater then the Prejudice can be and the advantage be as publick and far more than the others pretended losse can be.

My selfe am a President herein, I made a good Improvement upon a little Brooke above halfe a mile above a Water-mill, I turned the water course upon my Land, and turned it againe into the course halfe a mile before it came to his Mill; he sues me at Common Law and recovers against me; my Improvement was from six Load of Hay to twenty, his prejudice little or nothing for which no composition would serve but the ruine of it; which by this Verdict was accomplished.

Now as I humbly conceive, were there some legall settlement that where any damage should be made to any Miller or other, a reasonable satisfaction might be accepted, and they no way inabled (as now they are) to contest or molest a tenfold greater Improvement then their prejudice; for indeed it cannot be any the least prejudice in most mens workings who with their under Trenches doe draine out all the water againe so cleane, as nothing remaines behind but the sludge fatnesse, or thicknesse of the water; yea some works, and very many of this nature much strengthen the Millers streame, where they cut through Rushy Boggy ground and thence draw out a constant spring, which before was choked up and could not breake forth, which runs along with the rest of the water into his course or dam, and increaseth his water much thereby; For indeed the excellency of this peece is in draying out all the water againe, and going below any springy boggy matter



water on purpose to fetch it out of the ground, which indeed is the venom and payson of it.

The third Prejudice is, where all mens Lands lie intermixed in Common Fields or Meadows; the ingenious are disabled to the improving theirs, because others will not, neither sometimes can the Improvement be made upon any, unlesse upon all joyntly, or else upon an unsupportable Charge or Burthen.

The remedy whereof may be, in commanding them either unto a loving Conjunction in the Improvement, or else disabling any one to hinder another that is desirous of it, giving such recompence for any damage hee shall make, as shall be adjudged reasonable by indifferent men.

A fourth Prejudice is unlimited Commons, or commoning without stint, upon any Heath, Moore, Forrest or other Common; This is a great Prejudice to many poore men, both Cottyers and Land-Holders, who have not of their owne to stocke their Commons and so lose all, that have least need, and for whom those Commons were chiefly intended; And also a great hinderance to all; for being without that, every man layes on at random, and as many as they can get, and so overstocke the same that ordinarily they pine and starve their goods therein; and once in foure or five years you shall observe such a rot of sheepe that all that the oppressor hath gained by eating out his poore neighbours all the other years, is swept away in one, and so little advantage redoundeth to any; so that many thousand acres of Land are as it were uselesse, which were all men limited according to their proportion of Land or Dwellings to which the Commons is due, the poore that could not stocke theirs might set them, and reape some benefit by them; and were they easily stinted, their Commons might be as good as their owne severals to every man that hath Interest.

A fifth Prejudice is the want of a thorough searching of the bowels of the Earth, a busines more fit to be undertaken by the honourable representation of this whole Kingdome, than by any particular man; Whence are all our Mines of Lead Tinne Iron Coales, and silver Mines in Wales, were they not once hid, and as uncertaine as we are now certaine of them? and what should hinder but that in many places else the like may be discovered? as suppose Coale in Northampton Buckingham and Oxfordshire, what a great benefit to those Countreies would it be? Nay if some sorts of stone could be but found out in some other parts, what might it raise unto? Nay, say that either Marble or Chalke, or some other earth could be found in some parts of this Kingdome how much would it enrich those parts; And who can say but silver may as well be found in other places as in Wales or other



other parts of the World? I am sure that no man knowes but he that has searched it, and the hundred thousand part of this Kingdome hath never yet been tryed.

There are divers other Prejudices, to which I have spoke more largely in some parts of the following Discourse, as they have fallen most naturally to be discoursed there and therefore here will only trouble Your Honour with the heads thereof; you being the onliest meanes for their Removal: As when any one mans sloathfulnesse or ill Husbandry offends or hinders his Neighbours Profits, Wel-being, or Better being, I humbly conceive they were better be forced by a Law thereto (themselves being the greatest Gainers; For I indeavour not to lay upon them the least losse of disadvantage) rather then that any particular man should be hindered or the Common Weale of the least benefit, which is the maine loser in the end by their improvidences; If he will be idle or wilfull, let it be to himselfe, not to another.

The first is, That every man doth not kill his Meale; or Woots; The good Husband doth, and as fast as he destroyes them, the other preserving a Magazine or Treasury of them, stores him againe, as fast as one builds the other destroyes and so here is nothing but doing and undoing no small Prejudice.

Another is, when the second or Middle sort of Land, (as for the best sort of Land I leave to every mans pleasure, I presse no man thereto) which growes old, mossie, bankie, rushy, filthy, and so yeelds little profit in way of grazing, is not broke up by Ploughing and so corned for the good of the Kingdome, so many years as it may beare it without Prejudice, when it will beare abundance without any cost or charge bestowed, weak as it selfe no Penny, but rather advance it, and maintaine many soules in labour, and relieve many which are ready to be starved: which I humbly conceive I have manifestly cleared in the third Peece of this Discourse as very sensible. The Poore cry for it.

Another is, the not cutting straight such Water Course as may a little improve, which are great Prejudices to Improvement; which cannot be done by some that would, because others will not joyne abundance of the best Land of the Kingdome is hereby lost, and much more corrupted with coldnesse and bogginesse and cattell much indangered drowning, by reason of the Crooke's and Angles in the Courses.

Another is, the felling and destroying of the gallant Timber of the Kingdome, which though I would not bar any man from making benefit of his owne, yet were it with us as it is in some Kingdomes ordered, that



where any falleth Timber, he might be commanded to Plant again  
twice or thrice so much and nourish it, and maintaine it till it come to  
such growth as that it might defend it selfe, it would remove a great  
deale of Offence to many, and a great lesse to the whole Kingdome,  
A great hinderance of Improvement, and destroyer of Plenty it is.

The last is, Idlenesse, Sloath; and Drunkenesse, against which (I  
blesse God for them) we have w<sup>th</sup> some Lawes already, which are now  
growne meer Sarcines, men trample on them. Whence is all Peo-  
ples want of Callings, Streets filled with Idle Persons, the Countrey  
with Drones, the Roades with Hackers and Cutthroats, all Townes  
with Barretters, Pamphletters, Ballad singers, Students of mis-  
chiefe, Provoking and Exasperating to more wickednesse. but want of  
Execution? I only pray some such quickning Ordinance as may in-  
courage all sober men to the Prosecution of these worse than Heathe-  
nish Abominations amongst us Christians; that such Penalties may be  
annexed, and such power and countenance given to the Prosecutors, as  
that they which neglect may be ashamed, and all other incouraged thereto.

All which great Annoyances and Annuzances are no way possibly re-  
moveable but by Your Honours either compelling them to their own Ad-  
vantages by ailing Ingenuity, or else so Incouraging others that are de-  
trous thereof, that none may Prejudice Improvements, by denying any  
Liberty for carrying on the Worke receiving reasonable satisfaction for  
the damage. Which Proposals though unbeseeching me to present, yet  
not unworthy the grave and serious Consideration of Your Honours  
Wisdome, as being so much conducing to the Publicke Welfare of the  
Kingdome in which you are all Ingaged; which I leave before you  
untill the fittest season for your Lordships Consideration and ailing as  
may seeme to you most conducing to the good of all Concernments. The  
All-wise God guide you in your great Affaires and make you gloriously  
Instrumentall to the Prosperity of the Nation.

Which shall ever be the Prayer of your  
Honours unworthiest Servant

WALTER BLITH.

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## *The Epistle to the Ingenuous R E A D E R.*

**I** May possibly seeme a *Barbarian* to thee (though not to speak an unknowne Tongue) at thy first View of this Treatise, yet to hold forth a Discourse incredible, I beseech thee doome it not too deeply, untill thou hast wholly read it, and then censure it and me, Wherein cannot possibly but be great Defects, My selte being all Defect. The Originall cause of this Discourse, was occasioned by reason of the Authors ambition of some Addition, to some rude Experiments he himselte had made, which occasioned him to such a diligent Inquiry, both what had been practised by any that he could possibly heare of; That he undertooke divers journies into severall parts of this Kingdome, to see some Experiments made by divers Gentlemen therein. All which are very good and worthy Imitation, but not fully Satisfactory to his thirsty spirit, nor sutable to his present practise.

Which Vnsatisfiednesse, occasioned him also to make diligent Search throughout the great Citie, in most Stationers shops there, not questioning satisfaction to his owne desire; but there found little to his satisfaction neither; Yet some few there are that have been very usefull to many men, which have much of the *Theorie* of Husbandry in them, wherein they hold forth many good Directions and Prescriptions, now well knowne, and many of them practised in this Kingdome. Therefore I shall forbear to say any thing at all to those particulars, *My course steering another way*; Onely I shall declare my Opinion of some of their Works, and Principles, and so proceed.

There are divers Pieces of Master *Markhams*, which containe much for Profit, and more for Recreation, and are usefull, and have beene advantagious to the Kingdome; who treats of all things at large, that either concernes the Husbandman, with the good Housewife. And severall Instruments and Toolles to them belonging, that concerne the House, or Field, Cattell, Horse, and Sheepe. All manner of Recreations, at home and abroad, with their Instruments also. All which though old, and the spirits drained out; yet have beene very usefull to the Kingdome, and worthy much honour.

There is also a great Booke in Folio (called *The Countrey Farme*) translated out of French; to me conceived of little use to us, at least holdeth forth to us, either Rarely, or Mystically, any Improvement to purpose for this Kingdome. Master Gouge in his Husbandry, also holdeth forth many things of the like nature, and to the same purpose as Master *Markham* had done before him; As for Master *Tusser*, who Rimeth out of his Experiences; If thou delightest therein, thou maist find things worth thy Observation. And one or two Writers more of little worth or excellency, which I forbear to mention. But Sir *Francis Bacons Naturall History* let it have high Esteeme, 'tis full of Rarities and admiration for true Philosophie, and shall be acknowledged as a Sun in the Theore, to these poor and low Moon light discoveries, which are but meane Experiences of the lowest Practicke Husbandry;



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Only the last I met withall is Master *Gabriel Plats*, who is very Rationall and Ingenuous, with all which, or with which soever thou conversest, thou maist find some addition to thy owne experiences. Therefore having made some later Experiments my selfe, and found some profit and usefulness to the State therein, and finding scarce one word at all extant to these purposes, being prevailed with, by the Importunity of some Friends to communicate the same to publick view, Hoping thereby to give either Incouragement to some deeper and solid Practitioners to hold out their Experienced Principles, or else to exasperate or provoke the offended, or Gain-sayer, rather to reprove it; Which I shall accept most lovingly, especially seeing the occasion given is from a loving spirit, desiring a most Cleare, Plaine, and Cordiall Information, to himselfe and Kingdome, by whomsoever.

All which hath made me yeeld thereto, and so present thee with a rude Draught of some of his owne Experiences, though purchased to himselfe at a thousand fold dearer rate: Praying thee to accept them; and wherein thou art either able to reprove, admonish, or direct the Author, he earnestly begs it of thee; and waiteth the Opportunity; wherein he promiseth thee most thankfully the returne, not only of a large acknowledgement from himselfe thereof, but shall declare thy Experiences to others also, for thy owne prayse. All which have caused both his thoughts and practises to be made legible, and himselfe the subject of every opinion, wise, or weake: And though Dogs barke, and joyne together in their clamours against those they know not; Yet he hopes the Ingenuous honest Reader will not speak evil or condemne, before hearing, or offence given. But in some of the aforesaid Authors, some thing seems worthy Reprehension (*viz.*) There is such strict Directions, and such large Observations of the Seasons, Signes, and Planets, lesse considering the Nature of the Earth, and Seed, or God the blefser of them both, as if Seeds, Hearbs, and Plants, were to be Set, Sowne, or Planted in the Moone, or Planets. Which Observations followed, they had need produce a double profit; for I am sure neither halfe the Corne, Seed, Hearbs, or Plants, would then be Sowne or Planted; Besides their ridiculous and superstitious Tearmes, and Paintings, which I hope these dayes discover both the Vanitie and Wickednesse thereof, so as they are offensive to most in reading of them; That I should be thought to use words in vaine to reprehend them.

But to contend against any of their mistakes by way of Reprehension, I affect not; therefore let every mans experience try the issue. For I am sure in many things they have beene great Lights to our *Horizon*.

As for my Designe, 'tis so much different, that it shall not prejudice thy practice of any former prescriptions or directions, but incourage thee to the tryall of them; and is only to hold out some later Discoveries, of some six particular Parcels or Pieces of Improvement, Experimented at the only and proper cost of the Author; Some one Piece whereof hath cost him hundreds of pounds Discovering.

All which are therefore somewhat the more credible, and in reason they are not onely held forth by Demonstration; But also are reall Experiments, and visible to any dubious and unbelieving mind, if he please to take but one quarter of the paines for himselfe, as the Discoverer hath done for him, he may make his owne eyes the witness of the truth hereof. And if he will bring with him by way of Opposition, Substantiall arguments and demonstrations upon Experience, to convince him, and so prevent him of further Hazard, and the Kingdome of Delusion; hee shall be as heartily welcome to the Author, as if he came with such acknowledgement



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ment as to bestow a greet Pension on him for his Newes; Whose only end and aime is, to Discover both some Lands capable of vast advancement, as according to the common Principles and Experiences of the Kingdome, are deemed utterly incapable of any. And also to discover some such Materials to make the Improvement, as are usually applyed to such purposes; which are most of them so meane, so plain, so poore, so cheape, so simple; as will render the issue somewhat uncertaine and suspicious. And also to discover a capacity in most of the Lands throughout the Kingdome to be under, as shall by the application of the particulars discoursed hereafter render a most considerable improvement; yea, as great as is here promised or glossed in the Title or Frontis-piece; and all by no other charges or expences, but such as the very earth, the seas, or heavens, naturally offer or yeeld unto thee, and require; thy drawing forth the same to these ends, thine and the Kingdomes great advantage. All wrought and perfected, only at no other cost, but by thy owne Ingenuitie, and the labour, paines, and exercise of the poore Labourer; whom thou maist most gallantly relieve and maintaine, out of the very profit of his owne labour; whom if thou sufferest to want imployment, thou must maintaine at thy owne proper cost and charges upon necessity.

And yet by way of caution let me tell thee, That some pretending great things, and themselves men out-landish, have ingaged deeply herein, and held forth wonders, but ever upon the charge and expence of others. And have produced little but to themselves. A gallant Maintainance whilst they have beene making their Experiments. And at last when all hath failed, a faire paire of heels hath been the greatest advantage; as divers Dutch men not many yeares since, travelling the Kingdome, under pretence of drawing water, floating land, and doing wonders, many Gentlemen in the Kingdome paid well for their skill, and can witnesse with me the truth and issue. Others have professed great Improvements, by way of oyling seeds, and adding other rich compositions to the Lands, all farre beyond the profit or advance it ever yeelded; and so have procured Patents for an Invention, more usefull to thy admiration, then profitable in thy imitation; Of all which beware. Others also pretend great discoveries they can make, if they might have a publick stock to worke it, and a Patent for it; otherwise the publicke shall not share of their inventions; And I beleieve some men are able to doe many things of great advantage to a State; I wish they had more publick spirits; and that men were publicke more in honouring and recompencing publick services; whereas private actors cannot beare them. Yet be not discouraged, looke thou to duty; were Ingenuity the fashion of the times, this Kingdome would bee the Paradise of the worle; to build Hospitals, feed and cloath the poore and naked, is highly commended of all, and truly it is worthy of high honour, being done rightly, and to a right end; But this Discovery would inable the poore to feed and cloath themselves and others also. It is true, the world is full of conceits and phantasies, and I my selfe cannot challenge immutie, for Reason it selfe hath sometimes deceived me, when experience hath not concluded the question. And truly, though I have endeavoured hard to make out a rationall designe, yet am I at a stand (considering the temper of most peoples spirits) to conclude it seasonable; not well knowing whether more prosperity and plenty in this Nation, would be more consistent to the well being of it, when they have it, then the present condition they now enjoy. But I will not disturbe my selfe with this, nor use any further Reprehensions of this nature, but will presume to lay this taske upon the Ministry, who had, and still almost



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almost have forgot this Doctrine, and the necessity that lyes on them, to teach the people to exercise and practise Diligence, and Activity in their particular callings: Old *Pauls* rules and precepts, are almost worne out, and his practise slighted; yet I have so much hope in God, and charity towards our Ministry, that I waite for a larger breaking forth of light; and truth herein also; yea, answerable to this Gospel glory, beginning now to dawne. Questions in controversie, and raking into one anothers infirmities, have beene the exercise of these times, and ought to be the shame of us; but our duties at home, and in our callings, both generall and particular, and the abuse of them hath been forgotten. This gallant grace of Love so slighted, and so little pressed, that each is for himselfe, neither the great advantage to the publicke, nor particular Countries, Families, or Persons, at all regarded. Which had this duty of Faithfulness to God, and Countrey, and activity in our particular callings beene dismysteried, and freely and ingenuously urged upon the conscience, would have rowled the Sluggard, and brought ingenuity into greater practise.

But to turne back from Rambling, *Myſt Courteous Reader*, let me beg away thy prejudice, take heed of *Calumniation*; Say not such Improvements are Innovations before thou have proved them, as the Author hath by irrefragable Demonstration, and infallible experience. Consider good Husbandry, it is the sinew or marrow, holding together the joynts of Monarchie; and all Workmanship, without invention and activity, resolveth it selfe into the Workmans belly. Advance Improvement, for though a *New World* hath of late beene discovered, yet there is not an occupation or trade of finding them: Nor for ought I see, our English people active in searching for them, so that it is to me matter of the greatest Lamentation, the death of one able ingenious publicke man, more then thousand Drones, and his losse unreparable. Let every man make then best use of what hee hath attained, and but experiment these Proposals, and the greatest part of this Land may maintaine a double number without all Question.

Study industry, Improvement is neither Father or Mother unto plenty, but I may say it is the Midwife that Facillitates the birth. See the shiftings and confusions men run themselves into for a poore livelihood, and cannot attaine it; how would the Exercising of this Projection (if I may so call it without offence) prevent, and open a way to their comforts. Mind it, the kingdome is in misery and penury, plenty would be welcome; It is a great argument to me to quicken the speedy publication of it. I say no more, but intreat thee if thou read any read all, or else thou canst not possibly gaine the cleere understanding of any parcell of it; for the Author, rawnesse and unaccustomednesse to writing Books, and his little time allotted him from action or practise, and engagements in some publick service, hath occasioned some rudenesse, and unmethodizednesse herein; which another opportunity may rectifie; when possibly if God give occasion, thou maist have some other additions with a further explanation or enlargement of what is dubious; and although the Title page hold forth wonders beyond thy credence, which may seeme at first a little to amaze thee, considering so much ingenuity now abroad, and so much scruing and winding into all naturall things by sea and land, yea into the very bowels and spirits of them; so many designs on foot, so many projections every way to raise Wealth, Honour, and Greatnesse; that so poore a piece of clay as I should come into competition with the least of them is not my intention, but as I have held forth more in the Frontispiece then 'tis possibly (as most men may conceiue) should ever be clearly made good within



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within (as is most usuall now adayes) which will be made good if thou wilt both seriously vouchsafe the reading of it over, and the experimenting of what shall seeme most probable, which will draw forth such an issue as will not only make thee as covetous of further prosecution of the rest, As it hath done upon the Author, both in the practise of the particulars, and in the Discovery of the same to open viewe; but will also render a proportionablenesse of Improvement to what is glossed. And though the Author is forced to too much repetition or wordinesse to draw forth thy credulity; As also to present many things, as actions, or experiences of his owne, which some may deem high ostentation in him, and that it would have better become another, then himselfe to be a Trumpetter of his owne praile, to which hee most humbly pray thy charitable thoughts of these three reasons before thou judge him:

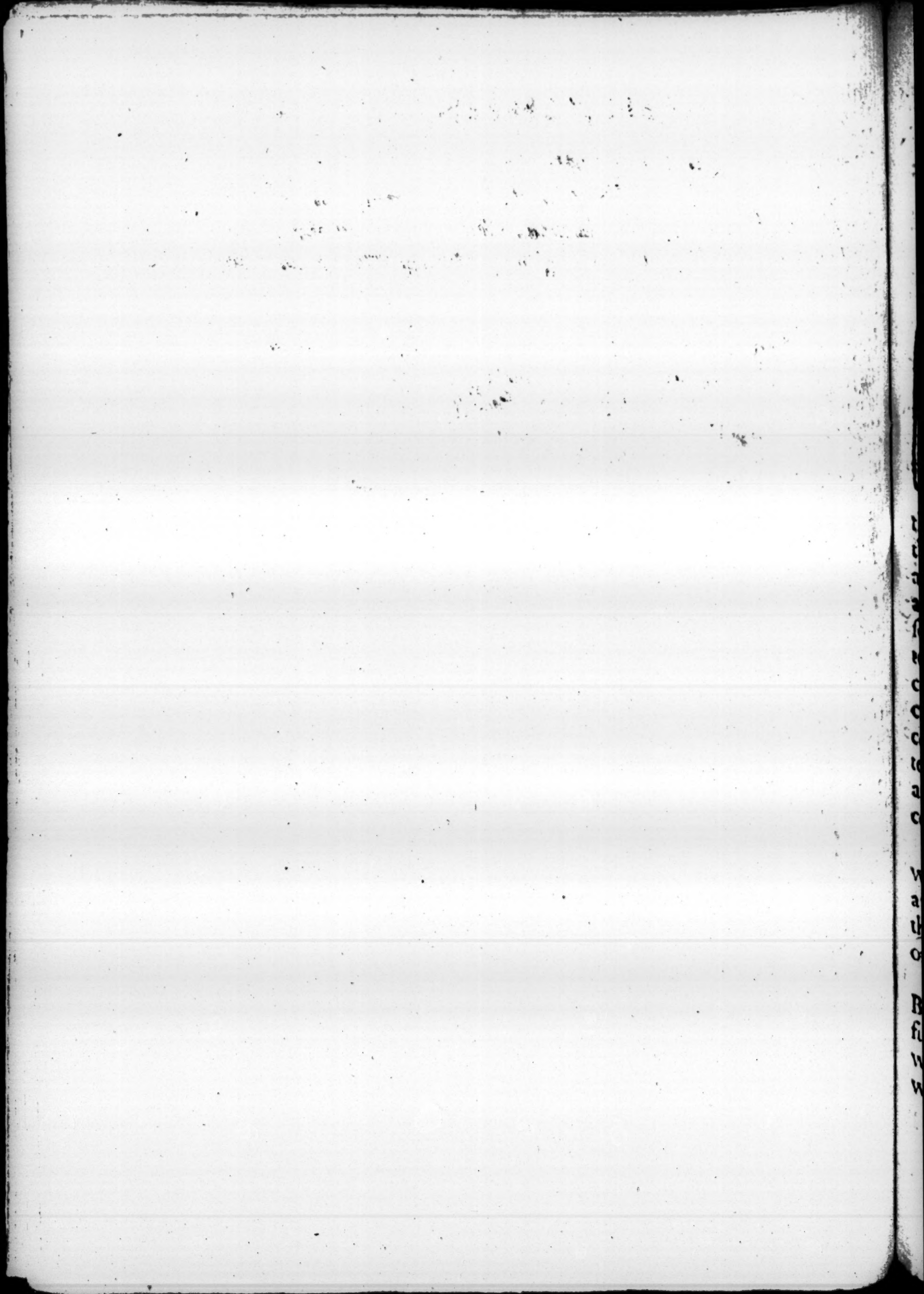
1. That most of this discourse was wrote and communicated to a speciall friend, as Direction in the said particulars before, and so would have caused an alteration of the whole frame thereof, which his occasions would not beare.
2. Because he finds so much abuse offered by many, in holding forth strange affirmations proving but conjectures, and Heare-sayes, as hath brought ingenuity under greatest scandall, and the usuall stile of new projects and devises, which none dare scorne when they are made experiments.
3. Because the subject treated of, though conceived the poorest and plainest Subject to be discourd, and the best progresse for perfection, made in the prooff thereof, of any Art, Mysterie, or Calling practised and held forth in England, yet in the way it is held forth, thou wilt find it in the practise more ambiguous then in the discourse, notwithstanding all my Applications to my owne experiences, most necessary to be held forth as they are, both for the clearer Illustration and proof of what is affirmed, as also of the discoveries of the place where it is to be scene; that in case thou art at a stand in thy Beliefe, or at a want in thy practise, thou maist know where, and how to be relieved; In which could the Author have been supplied, 'tis some odds whether this piece had rendred it selfe unto the hazard of acceptance, or disgrace, in so rude a manner; Wherein if thou wilt vouchsafe thy charity, and but with patience peruse the whole, he hopes to have his end of thee. A faire acceptance without reproachings; who hath no more for present to trouble thee with in the porch or gate, but to commend thee to God, to whom he prayes thee commend thy selfe, And take him strictly with thee in all thy ingagements, who is originally in and over all; And so doing I shall bring thee into the land or pasture, where thy practising these following directions, subservient to the great Designe, *Thy duty to God*, I shall all wish thee good speed in serving thy Generation; and am

Still greedy of thine and the  
Kingdomes prosperity.

*Walter Blith.*


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[illegible]

 Or the discovery whereof, and discourse wherein (by Gods leave) some particulars shall be laid down as Generalls to be discoursed. And that I may speake to the understanding of all men, especially those who have little or nothing at all considered of such things, nor so much as ever suffered the practise part of Husbandry to come into their mindes; or those who in respect of their more noble and high employments have lived and conversed in another Region, about the weighty affaires of the Kingdome, onely receiving and living upon the present profits of their Lands, not minding their Lands advance; And others who have lived more above the creature, and conversed most in heaven, and so are more unacquainted with the language and tearms of Husbandry: therefore I will deliver my selfe in our own naturall country Language, and in our ordinary and usuall home-spun tearms, especially because I can speak no other, and in as few words as I can possibly conceive it cleare to each apprehension; and therefore before I begin to enter the discourse at large, give me leave to premise the Excellency, Necessity, and Usefulnessse of Improvement, or good husbandry; And then the discourse shall follow under these two generall heads:

I First I will discover the causes of Barrenesse upon all Land, and what corruptions both in the Land it selfe, and in mens opinions, practices, and customes, must be removed; and then to each piece of improvement as they are laid down in order; wherein will be discussed the whole method of Improvement.

2 The second generail, being the Remedies and Preventions of the said Barrenesse, and the means of reducing some to its utmost former fruitfulness, and Improving others to the greatest advantage it is capable of: wherein that great Improvement promised, is held forth at large, all which will be discoursed under.



*Six Severall Heads or Pieces of Improvement which are made good.*

1 **B**Y floating or watering all sorts of Lands which lie under that capacity.

2 By drayning or reducing of Boggy or drowned Lands to firmnesse and fruitfulnessse.

3. Shall be the dividing of two foule extreames, or Rocks, many run upon in these dayes.

1 One is for Pasture and Grazing, so that he will destroy all Tillage.

2 And the other for Tillage, so that he will destroy all Pasture and Inclosure.

A mean betwixt these in this way of Improvement provides first for the Poore, and then for all concerned, to wonderfull great advantage, without the least prejudice to any. One part, holds forth such a way of Inclosure, as advanceth all Interests.

And the other such a way of Ploughing old Pasture, not to the least prejudice, but to so great profit promised.

4 Fourth shall be a discovery of such simples or Materialls as Soyle compounded with the Earth, with the nature and use of both, so as thereby you shall raise so much more Corn unto this Kingdome, as shall make good the Improvement promised.

5 By a new Erection or Plantation of divers sorts of Woods and Timber, as in few years a man may make sufficient buildings thereof; yea, upon divers sorts of Land in this Kingdome, at twenty years growth it will arise unto an incredible height and bignesse.

6 To this I le adde a sixth, a more moderate Improvement of all other Lands, to so high advance each will admit, by more familiar experiences, and more common waies of Husbandry; in all which particulars, the Improving mens wits and labours, that have bodies made able for it, in such waies so advantageous to the Kingdome, as they thereby shall not only be comfortably provided for themselves, and Idlenesse, that root of mischief, ruined, but all Interests shall be much advanced; and for the further Illustration, and making out the Improvements cleare, and easie to common apprehensions, I have divided the discourse into 25 Chapters.



## CHAP. I.

*Treateth of the Excellency, Necessity, and Usefulness of Improvement and good Husbandry.*

**W**hich appeareth partly by the Antiquity of it, for every thing is the more excellent, the more ancient, and neerer it comes to God the first being of all things, which as all things neerer the Center move more strongly, so Excellency appears, most evidently the neerer, (if I may speake with reverence to that great Majesty) the great Husbandman, God himselfe. First in his making the world, he made all Creatures, and all Plants, Fruits, Trees, Herbs, and all bearing Seed. for the food of Man and Beast; He also made those more excellent and glorious Creatures, as the Light, the Day, and Night, the Firmament, the Earth, and Seas, the Sun, Moon, and Starrs, all to be serviceable, and ministers unto the Creatures reliefe, and all the creatures subservient to man, and man to husbandize the fruits of the earth, and dresse, and keep them for the use of the Creature.

So God was the Originall, and first Husbandman, the pattern of all Husbandry, and first projector of that great designe, to bring that old Masse and Chaos of confusion unto so vast an Improvement, as all the world admires, and subsists from. And having given man such a Pattern both for precept and president for his encouragement, he makes him Lord of all untill the fall; And after that God intending the preservation of what he made, notwithstanding the great curse upon *Adam*, *Eve*, and Serpent, the Earth not going free, but a curse of Barrennesse cast upon it also, yet *Adam* is sent forth to till the Earth, and improve it, *In the sweat of his face he must eat bread untill he return to the Earth again.* Gen. 4.24

And so down to *Cain* and *Abel*, the one Husbanding the Earth for Tillage, and the other the Sheep in Pasturing and Grazing; and so down to *Noah*, he began to be an Husbandman; and to *Abraham*, and to *Jacob* and *Esau*, and so along still till they came to Government by Kings, where *David* his commendation was, *he loved Husbandry*, and many excellent things, as if Husbandry were the most excellent, as indeed it is here on Earth; else aske *Solomon* the wisest, the second Husbandman or Improver of the world and you shall finde how out of the depth of his experiences, he cryes up diligence and activity in good Husbandry, therefore sendeth us to the *Pismire*, cryeth down the *Sluggard*, and *Slottfull*, on whom cometh poverty as an armed man, and extols the diligent as fittest to converse with Kings, whose very thoughts bring abundance even of the diligent whole hand

Excellency,  
Necessity,  
Antiquity.

Gen. 4.24

Gen. 9.12

2 Chr. 26. 11.

Prov. 6.6

Pro. 15.19

Pro. 20.39

Pro. 22.21

Pro. 12.24



hand and heart are best to beare rule, when the idle shall be under Tribute. But to multiply more Scripture, where all experience holds it so cleare, is but to prove a principle ungain-said ; He say no more. But for the usefulness of it, it's no les then the maintenance of our Lives, Estate, the Kingdome, Common-wealth, and World and the Improvement, or Advancement of the fruits and profits of the Earth by ingenuity, is little lesse then an addition of a new world, for what is gained hereby either above the naturall fruitfulness of the Earth, or else by reducement of that which is destroyed, or impoverished from his naturall fruitfulness, is a cleare Augmentation or Addition to the Common-wealth.

All other callings proceeding hence, the Earth being the very wombe that beares all, and the Mother that must nourish and maintain all. The Merchant is a gallant servant to the State, he fetches it from farre, and 'tis a gallant Enrichment to this Nation. but he purchaseth it from others, who could make profit of it, if he buy it not ; raiseth it not out of nothing, but parts with good Silver or Gold, or some good commodity; for it.

But this Merchant of Husbandry he raiseth it out of the Earth which otherwise would yeeld nothing, unlesse his ingenuity fetch it out possibly never discovered to be there. And what parts he with ? or at what rates purchaseth he it at ? Even only with the wages of the labouring man, whom he is bound both by the Law of God, Nature, and the Land, to maintain, who may be were he not maintained in worke, would cost as much to be maintained idly. Oh ! the Excellency, Antiquity, and Usefulness of it Improve the first, and chiefest of thy Spirits on God in omnifying him above all, and in all, and the rest of thy wits and strength to serve thy station: heerein, accompting it the second thing necessary, *a blessing being upon the head of him that tilleth Corn, and the thoughts of the diligent bring abundance.* And so I proceed to the occasions of the Earths Barrennesse, being the first General of my discourse.

## CHAP. II.

*Sheweth forth the causes of Barrennesse.*

**C**auses of Barrennesse. They are usually two.

1 In man himselfe. 2 In the Land it selfe.

1 In man himselfe it was occasionally accidentall, who by his sinne procured a curse upon the Land even Barrennesse it selfe, which by the sweat of his browes must be reduced, if he will eat bread, and so now is

2 In man naturally, which is the main and capitall cause of all, and is

Prover. II. 26.  
Prover. II. 5



*Reduement of Land to Pristine Fertility.*

in him as I conceive the Cause of Causes, which is ignorance. occasioning occasion-  
the prejudice men beare against Improvement especially that which is not of ing preju-  
their own devising, as all men naturally hate the true light of God, because dice.  
it discovers their darknesse and is contrary to their light, which is that of  
Nature and Reason onely, The great enemies of Gospel-Light. So that pa-  
rallel hereunto in some measure, is the hatred that many beare to any new  
Ingenuous discovery of that which is not under their ken or common pra-  
ctice, unlesse they can make it their own contrivement, which ariseth from  
old *Adam's* proud nature so rooted in ours, that wherein we cannot ascribe  
unto our selves the praise we had rather lose the profit, then presently de-  
serve the same; This is no other but a principall of some young Brain-sick,  
or of one that would Monopolize more to his ten, twenty, or thirty yeares  
study and experience, then our fathers and fore-fathers attained in all their  
practises, or else some giddy head that will say more in halfe an houres dis-  
course, then he will make good proove of in an Age. Or else it is an Expe-  
riment that will cost more then the profits thereof will countervale, or  
else the Improvement is so great, that they cannot possibly credit such Im-  
possibilities, with innumerable more such passages; never putting forth their  
Minds, Hands, or Purles, to never so great and profitable an advantage, like  
the Sluggard, who will not plough, but saith, *A Lion is in the way.* And Pro. 4.13.  
so, by feeding upon these or such like Prejudices, they suffocate their own un- Pro. 26.13.  
speakable advantage, which they might accomplish with setting on the  
worke and exercising a little patience in waiting for a through tryall. Al-  
though He say it should be our rejoycing when any discovery is made,  
(chiefly of God) and then of that which shall concern the publike good, be  
the Instrument what he will and not ingaged therein for meere advantage  
onely as too many have done.

Holding forth specious Pretences of great wonders and the condition  
hath ever been great gain to the discoverer, and more then the worth of the  
discovery many times hath been, yet if the naked end be the publick good,  
be the discovery what it will, or the Discoverer conceived neither of so  
deep a head, nor of so long experience, as others have been, yea, though thou  
conceive it a Project so chargeable, that will not answer the cost bestowed,  
or an advance so great as is not credible, yet consider if he utter Reason, Art,  
or honesty, and especially where he offereth experience for the proove there-  
of, have thou patience to consider thereof if thou wilt not make triall of  
it, his is the paines, and if to any it is thy Gaines, he hath but his labour for  
his travell.

The second Hinderance as in respect of the owner, or occupier thereof, is Improvi-  
dence and  
Idlenesse, Improvidence, and a slavish Custome, of some old forme, or way a slavish  
of custome.



of Husbandry, exercised therein ever since they were borne, which begets so much ill Husbandry in this Kingdome, never affecting Ingenuity in any particulars of their Husbandry, which is contrary to the mind and will of God in making us : And the end wherefore we were made, Good-Husbandry commanded, and so experimented by God himselfe, and charged on us therein, and so commended by *Solomon* the wisest of men, with Ingenuity and Activity, to the putting out the utmost of our spirits, in subordination to our spirituall calling, in our particular callings to serve our generations, and improve our Principles for the common good, which two aforesaid causes, if they be not removed, will never admit of the removall of the sublequent causes.

3. Cause is want of punishment of Idleness, and want of Stock to set the poore on worke.

A crying sin.

Drunkennesse.

A third particular cause in man, of the Earths unfruitfulness, is want of severe punishment of Idleness, the Mother, and Drunkenness, the Daughter, or the putting in execution of such good and wholesome Laws, as both God and man have provided therein, As also not raising stocks in all Countries, as a Magazine or treasury of worke, and labour, for those that want it ; And those other Lawes for punishing of Rogues, and Vagrants, that wander throughout the Kingdome, and compelling and constraining youth, and idle people to some callings, All which would both put them on to more Ingenuity, and the Gentry, and Yeomanry of the Kingdome would bee much induced to Invention, and Expatiating themselves in charge, and treasure, to maintaine them, whereby these horrid finnes of Idleness, Lust, and Lawlessness would be checked, and these Drones, and Catterpillers the bane of a Christian State, and shame of a Christian Nation, would not so swarm amongst us ; It is a crying sin of our Kingdome, I pray God charge it not upon us, lest as we have already smarted for it, we smart not now at last to purpose. So that were but these Improvements put into Experiments, their great Plea would be silenced (*viz.*) *Will you set us on worke ? we will worke ; if you'll provide it, &c.* (and out of all question) the capacities of the Kingdome herein, are farre more then here be labouring men to act them, and so as they conceive, they iustifie their Abomination, both by necessity and authority.

As for Drunkenness the daughter, which so aboundeth in this Kingdome, that I verily believe, and feare not to make it forth, by reason, and experience, that were it, the daughter, with Idleness the Mother, suppressed in this Kingdome, we need never to feare want or penury. I know divers Townes in this Kingdome, where you shall have two, or three poore Ale-houses, wickedly, and wastefully, devoure more Mault, then all the Freeholders, Labourers and Inhabitants besides. And judge you, Labouring Countrey people brew their own beere also, neither is there any passage



lage, or Roade-way through the Townes, where these private houses of  
resort are, and yet these to vent so much Beere, or Ale, is wonderfull!  
How much then is consumed in great Passages, common Roades, great  
Townes, Markets, or Cities wastefully, and wickedly? if so much be in  
Corners remote, and not thought of? so that were there a suppression here-  
of, how would Idlenesse be abashed? men would scarce stand idle in open  
wayes, or passages for shame, wife and children enjoy their Fathers, and  
Husbands at home, if doing little, yet not consuming that they have got  
already, and the Markets more full, and plentiful of corne so miserably  
wasted; And therefore as I highly commend these Laws we have alrea-  
dy, and prayle God for them, so I humbly pray a quickning of their exe-  
cution, wherein our Worthies, had they not so heavy pressures upon their  
shoulders, as are ready to break their backs, (I am sure they have broke  
the spirits already of divers, whose losse we have cause to lament with wa-  
tery eyes) they might humbly be implored for some Inlivening. Quickning,  
Ordinances, with such strict penalties annexed to the Execution of them,  
as the Discoverer or Projector might not only be rewarded, but commen-  
ded and protected from disgrace and calumny.

The second generall cause of Barrenesse is in the Earth it selfe, and the  
principall causes of her Barrenesse are very many, some are obvious to  
the Judgement, and understanding of all, as tilling Land till it beare no  
corne.

A generall  
cause of  
Barren-  
nesse.

And mowing Ground till it Graze no more, or yeeld no grasse; all  
which are easily to be remedied if men would learne moderation.

Cut Til-  
ling.

But my designe lyes not so much in Reproving, as Improving and dis-  
covering that there are many causes which lie more oblique, and are either  
not discerned at all, or else not adjudged any cause of Barrenesse, or hin-  
derance of the Earths fertility, And so not all at indeavoured to be remo-  
ved and they are in some Lands, extreame Coldnesse of nature, having a  
moist springing water lying neare, or just under the surface or superficies of  
the Earth, which doeth either eat away or devoure the Sap, Fruit, and  
Strength of the said Lands, or else breed and increase the Rush, and Flag,  
which groweth in the roome of Grasse and eateth away the same.

Another cause is Rockinesse, Stoninesse and Gravellinesse, all which ma-  
ny times lie so neare the surface of the Land that they devoure much of the  
Earth, and so make that little left so weake, that it can scarce bring forth  
any fruit.

Rocki-  
nesse.

Another cause is lying Mountainous, sometimes so neare the Sea, that  
the Vapors and Fogs, that come from thence, annoy the same. Also lying  
far from the Sun and in shady parts occasioneth Barrenesse.

Mountai-  
nous.

Another



Improvi-  
dence lay-  
ing downe  
all Lands.

How to  
lay downe  
warne  
Land.  
How cold  
Land.

Standing  
water in  
winter.

Molehills.

Another cause of Barrennesse is the unsutable, unnaturall laying down of Land to Graze, a cause scarce imagined so to be, or the present ill lying of Land, that hath layen long and was ancient Inclosure, all which are infinitely more pre iudiciall to the fertility thereof then can be imagined (*viz.*) for that Land that is sandy, warme, or gravelly, that to be laid on high Ridge or Furrow is directly contrary to the naturall fruitfulnessse of that Land; And that which is of a cold, moist, spewing or weeping nature, for that to be laid down flat or leuell, is to the ruine and destruction of that also, and is an extreame on the other hand.

The latter sort requirerth high ridged Lands, and cleer open Furrowes. And the first sort the contrary, and especially all lands whatsoever to be laid down in good heart and strength.

Also another cause, is the standing of the winter water upon the land, or the raine of Heaven, I say not the running over lands, so that it may be laid dry at pleasure but the standing, soaking water breeds the Rush and fowlenesse and likewise gnawes out the heart and strength of it, like the worrne at the Stomack, and devoureth the strength of it, as experience will shew in many parts of the Kingdome, where great Balkes betwixt Lands, Hades, Meares, or Divisions, betwixt Land, and Land are left, and one Furlong butting, or Hadlanding upon other Furlongs, make such a stoppage of the free passage of the water, that a great part of that Land lieth as it were drowned, a great part of the yeare, that it overcomes not that backing many times till neare Midsummer, when other sound Lands have yeelded a full half yeares profit, and so for half a yeere yeelds little or no profit at all.

Another great prejudice is the Mole-hills, and the Ant-hills although I shall not directly argue hence Barrennesse, yet I shall demonstrate the evill of both, for the Mole-hills, that destroyes some part of the Land, by the severall casting up of much mould upon the Grasse, all which are hindrances to the increate of the owner. But for the Ant-hills if my opinion faile not exceedingly, they are grand enemies to the Grazier, and Husbandmans advantage, they destroy more then men observe, I doe beleve that in some great Pastures in *England*, there is one fourth part of the cleare fruit of that Land, lost by the multiplicity of them, for although some are of opinion that they are little or no prejudice, they are much mistaken, and they will clearly be convinced thereof, if they will but either seriously consider the quantity of grasse that groweth upon them or else consider the rarenesse of Cattell feeding upon them, and then also consider the quantity of Ground, and good Ground, they cover, will easily appeare the great prejudice by them.

But



But thereto some may object, they make more ground.

Ans.

I answer they doe, such as it is; destroy a lesser good quantity of Land, and adde possibly a double bad; but let them consider that this Addition is a great Substraction, for if you weigh what I said before, they beare little, or no grasse, a little wild time and speary harsh grasse, that cattell eat not, but in case of hunger. And I am sure they cover a great deale of good Land. Doe but really consider it upon experience, and thou shalt find, that one Acre plaine or bancked shall doe as much service, as an Acre and near an half shall doe that is so hilly. And againe if you doe not flatter yourselves, in your own judgements you wil find that while the Land was plaine, if you consider the fruit it then yeelded, and the Cattell it then maintained, you will find there is no proportion between what it then kept, and what it now maintains, for in my Experience I find that old resty Land, much overrun with these hills, much degenerates; and doth not, nor hath of late years kept the former usuall Stock it kept before it grew so hilly, and so old, by neer or about one fourth part, which I am sure is as much Advantage, or clear profit the Grazier, Breeder, or Tenant need expect; and although some will not acknowledge the Experience herein, yet many I am sure they find it by loosing prooffe, besides the danger of casting their Cattell and Sheep betwixt the Hills which oft destroys them.

Another cause of Barrennesse is Bogginesse or Mirenesse, which turns all Lands both Bad, Good and Better, into such a state of Barrennesse and unfruitfulnesse, that it (in some parts) almost destroys the Land, and in other parts it wholly destroys it, and in some places makes it worse then nothing; for insted of yeelding some fruit, it not only yeeldeth none but corrupts and prejudiceth other Lands on which it borders, and in it selfe most dangerous to mischieve the Goods or Chattell that doe pasture upon the same, and so may be accidentally many degrees worse then nothing.

Bogginers,

Another cause of Barrennesse is the Overflowing, and constant abiding or resting of the waters of the Sea, Rivers, standing Lakes or Pooles, for be it fresh or salt water, if it lye constantly upon it, it assuredly destroyeth it, although some more, some lesse, according to the deepnesse, and barrennesse of the water, which covers it, and the soundnesse of the ground on which it lyeth, so is the fruitfulnessse more or lesse peripenous. Many other causes of offences might be spoke unto, but they are referred to a more proper Oppertunity, wherein they may receive a more suitable capacity of removeall and others also will be dropped into the discourse at large, as occasion most seasonably is administred. And so I proceed to the Recoveries of the said Barrennesse. But before I descend to the particulars, consider the severall sorts of Lands that will admit of Improvement, *Which I consider under two Generall Heads.*

Constant resting of the water on that Land.



1 Head.

2 Head.

First all Inclosed, Severall Land, whether Meadow or Pasture.

Secondly, Common Lands, whether Arable or Grazing. First Severall inclosed Lands I divide into three sorts, or else will rancke them under three Heads.

1 First shall be our worst sort of Lands, of what nature soever they be, from the value of one shilling *per* Acre, to ten shillings, The Improvement whereof will fall under most of the six particular pieces, it being capable of most and greatest *Improvement*.

2 Secondly our middle sorts of Lands, from the value of Ten shillings *per* Acre unto Twenty, which falls naturally under the third Piece or way of Improvement, yet is capable oft times to fall under some or most of the other Pieces also.

3 Third shall be our richest Land, from Twenty shillings *per* Acre, to Forty and from Forty to three or foure Pounds an Acre, some whereof of this sort, will admit of very little or no improvement, having all naturall, and Artificiall Experiments already made upon it; but some others of this richer sort will admit of a very considerable Improvement, and is principally discovered under the sixth Piece; neither can I say that all Lands without exception of the two former sorts may be Improved: for possibly and out of question very much is Improved already, and others may lye so voyde of any capacity of Improvement, that either there may be none at all, or else none that will raise such Improvements, as will well and sufficiently requite the charge, and cost bestowed.

Only improve upon great advantage

And my designe is principally to hold only forth possibilities of Improving at a far inferior charge to the cost bestowed, and the Improvement made from such materials as generally are lost, or little or no whit practised in most parts of the Kingdome.

The second Generall, are our common Lands, whether arable, constantly under Tillage, such as are our common fields, all the field on or field Land throughout the Kingdome of which there may be three sorts also Bad, Better, Best of all, and all and every part thereof may be very much and manifoldly advanced under some or all of the aforesaid Pieces; or else whether it be Commons or Commune of Pasture upon the great and vast Commons, called Heaths, Forrests, Moores, Marshes, Meades, or whatsoever of them, Those also may admit of a very great Advancement, and these Lands will fall familiarly under every Piece, according to their severall values, and capacities, but most especially under the third and fourth Piece, treating of Tillage, and Inclosure. And then I shall proceed to shew you the nature of each sort of Lands whereby the Remedies will be most facile and easy in the application.



*The second Generall holds forth the severall means of Cure : Or the reduement of Land unto Fruitfulnesse and Fertility, discovered under the first Piece of Improvement of floating or watering Lands.*

CHAP. III.

*Shewes the first Cure or Remedy against Barrennesse, and therein discourseth what Lands are most sutable to watering : And how to gain water upon the same.*

**B**Vt before I discourse the same at large, I shall only say that there are severall remedies against the said Barrennesse, or divers means of reducing these Lands to their naturall fruitfulnessse, or to the Improvement of them, to a more Supernaturall Advance then they were ever known to be.

To which I must premonish the Reader, that here lyeth all the Skill and Kernell, which being made forth according to the first proposition Generall in some good measure, I hope will give thee such satisfaction, that thou wilt not only vouchsafe me the reading and thy credit thereto, but also bee a practitioner therein ; Which done with delight, will not onely produce the reall advantage here discovered, but far greater : for these things are, and may be brought to a greater height of Advancement, by how much the more Ingenuity and Activity is exercised in the Prosecution and Experimenting of them, and to a greater discovery by a constant and familiar use of them ; which is the true and reall end of this Discovery ; and the Proverb herein will hold ; *The more the Merrier.*

*The Cure followes now more largely.*

**A**Ll sorts of Lands, of what nature or quality soever they be, under what Climate soever, of what constitution or condition soever, of what face or character soever they be ( unless it be such as naturally participate of that fatnesse which Artificially it may be raised unto ) will admit of a very large Improvement.

And such are the Lands, that lye nere unto, or bordering upon any River, or small Brookes, your little Rivers, and Rivolets, admitting of greater falls and descents then your bigger Rivers doe, which run more dull and slow, more dead and levell, whereby little Opportunity will be gained of bringing but little Land to so great advance by them, but where the greater Rivers can be gained over any Lands, there will the Improvement be the greatest, and the Lands made the richest, the greater Rivers being usually the fruitfulest, having more Land-floods fall into them ; But under your lesser Brooks may your greatest quantities of Land be gained, and your wa-

Under great Rivers will be the best Land. And under lesser, the greater quantities and greatest Improvement.



ter most easily and with small charge be brought over greater parcells then upon great or Rivers.

1 For the discovering of such Lands that lye under this Capacitie, you must seriously consider the Situation of your Lands, if your Lands be more hilly, and your Brooks run more swiftly, more Lands may be brought under them ; Also if your Lands lye more shelving or descending towards the River, that your water may fall off as fast as it cometh on, the quicker and easier will your Land be Improved, especially if your Land be sound, light, or gravelly ; This is a most gallant opportunity, if you have either a constant Streame, or Land-flood.

And here let me ( good Reader ) advertise thee of one Piece of Husbandry most highly commended of most men ; And truly so it is very commendable, and excellent, compar'd either with those that use none ; or else neglect this where it may be done, which is this.

Setting  
water in  
Pooles or  
Lakes not  
so excel-  
lent.

Many Gentlemen have assayed to water their Lands, by setting the Water in Pooles, Ponds, or Lakes upon them, and continuing it standing, and soaking many dayes and weeks together ; and then draw their Stices, or remove their stoppages, and drain away all their water again, to which way of flowing I incourage all men rather then neglect all, and honour them therein, yet if they please to make Experiment of the succeeding way of floating, they will easily let this fall ; The excellency whereof consists in the speedy taking away the water, as soon as it is brought on ; And onely suffer it to run over, and so with all speed runne off into some drayning Trench again : The Method whereof shall at large be handled, by which, such a concealed Advantage will be discovered, that men will wonder how they were deceived.

In what  
Cases to  
cover  
Land by  
Water.

1 My advice shall be, never cover thy Land with a standing Water, unlesse for a day or two, or else in case thy Land should be so Levell that it hath no descent at all, then better let the Water upon it, then neglect it, so thou be sure to drayne it after one or two dayes standing, yet it is impossible ever to produce the like effect, as it shall according to the subsequent directions ; Because it neither receives the full fruit, or fatnesse of the water so fully and kindly, nor is grazable and feedable so soon, nor yet so richly, as in the other kind of working.

2. After thou hast considered the Situation of thy Lands, as aforesaid, then search, and find out the lowest part of thy Lands, and there having found such a Levell or descent, as will lay all thy Lands dry againe, as thou shalt have occasion to floate them, which drayne must be wrought so deep, as that thou mayst goe under that corrupt feeding or springie moy-sture, that breeds, and feeds the Rush, Flag, and Mareblabb, or else causes thy Land to turn Spewing, Morish, or Boggy, which two advantages, if thou  
haddst.



hast discovered and found upon thy Land, (which little Land in *England*, but hath one or both of them) and so come to the third Direction, and,

3. Then consider seriously the nature of thy Land, which if it be cold, and of a sad Nature, moyst and spewing It will require then a very good Land-flood, or a constant River to overflow it, and other barren hungry Water will do very little good thereof.

But, if either thy Land be Gravell, or of a sound, warme, Sandie, or mixed nature, and any whit Descending then any Running Streame will have a gallant Operation; The warmer, lighter, and sounder is the Land, the greater is the Advantage, These particulars discovered, out of question thou hast a wonderfull Advantage before thee, especially if thou hast any great Length and quantity of Land along the River, or by a great Road-way side, or else hast any good Land-floods from great Townes or Cities, make as much of these Advantages, and prize them as thy Lands, for though hereby thou canst make thy Lands no more, yet thou mayst make them so much better, almost as thou canst desire.

Suppose some man of great credit should say, Sir, you have two hundred Acres in such a place, what if I should lay you a hundred more in the midst of them? he would wonder at it, yet because of the credit of him that spake it, he doth not wholly disdain it, and if it could be done hee deserved thanks for it, but he doth doe it really though not in kind, that advanceth or improves the Land but one third part, that makes Two Acres as good as Three, much more he that makes One as good as Three, or Five, or Ten, as before this watering businesse be done shall clearly appeare; and so I descend to the working out the same. I had forgot another sort of Land, which is your Boggy, Quagmire Land, no lesse capable of a mighty Improvement, if it fall under the opportunity of floating.

Land and moyst worst to Improve by watering. Land sound, dry and warm the best.

Boggy Lands good for watering.

#### CHAP. IV.

*Shewes how to worke thy Land, and water, so as to reduce it; and worke out the Improvement promised.*

**A**nd so doe but a little consider of the way, of both fitting thy Land to thy Water, and thy Water to thy Land, with the truest, naturallest, and properest Seasons for bringing it on and taking it off, and thou shalt see an admired issue.

And being resolved to make this Improvement, Plot out thy Land, into such a Modell or Platforme as thou mayst be sure that all thy Land thou designest to this Improvement, may not faile therein, I mean that all thy Lands thou resolvest to floate may be under the true Levell of thy Water;



And that this may be, I shall here discover to thee how to carry thy Water upon the Levell, that thou shalt lose no ground, neither carry it so dead, that thou canst not kindly worke it, and this precisely observed may bee in stead of many Persians Wheelles, so highly commended by Mr. *Gabriel Plats*; which wheele is also commendable, and may be very usefull, where either no good falls can be gained, nor other waies the water cannot be raised to higher parts of ground which you desire to water; The description of which Persian Wheele I hope to give thee before this discourse be ended.

And now for the Method or way of working thy Water upon thy Land without this Wheele (which will require a double streame, one to drive it, and another to be raised) and without the charge of all other appurtenances to the said Wheele belonging, as Dams, Sluces, &c. and the maintenance of the same for preservation of this charge, and for the more easie working the Improvement.

Take a most exact Survey of thy Water, not by the Eye onely, but by, and with a most true exact Water Levell, which is an instrument but rarely made nor used among us, which shall be largely described among other Toolles in the ninth Chapter.

How to  
begin the  
first peece  
of water-  
ing.

And either begin at the upper end, or neather end of thy Land, which thou pleassest if at the upper end, where the water first entreth into thy Land. And by thy Levell discover and plot out where thy water will goe all along thy Land, as thou goest downward, that so thou mayest lose no Land, that will easily be brought under thy water; Then cut out thy master Trench or Water-course if thou pleassest to such a bignesse as may contain all thy Land-floud, especially to bring it within thy Land, and so bring down thy whole Water-course together: But the most certainest way is, as soon as thou hast brought thy water within thy Land, upon the Superficies of it; then carry it along in a foot broad Trench, or lesler, all along thy Levell, which water will be a great help, and a second and titter Levell then the other, and in thy working of it thou shalt find all little enough to prevent it to be too dead a Levell, and yet lose no Ground neither: If thy Levell be too dead, the lesler streame will follow thee, so that a convenient discent must be minded also to give the water a faire and plausible passage or current all along. And if thou discover in this lesler Trench, any mistake or failing, then thou mayest with more ease and lesse charge amend the same, and stop up the same again (for thy Trench need bee no deeper then the thicknesse of thy upper Turffe) and cut out a new and so thou mayest most certainly demonstrate where thy main work shall goe without hazzard.

This done thou mayest cut out thy water-course; and be sure it be large enough to containe the whole Water, and so thou have longitude or length of Ground, the Trench must be the broder not the deeper, for a shallow  
Trench



Trench is best for this worke. And when thou hast brought it so far into thy Land, as thou hast any Land to worke upon, thou mayest a little narrow thy Course, as thou seest the quantity of thy Land, or Water require, and so far as thou wouldest have thy Course float over all at once, thou must cut thy Trench narrower and narrower all along to the neather end, that so without stops and staies it may flow all along at once, the Trench being narrower and narrower; that Water that comes within the Trench where it is wider must needs thrust out that, which the narrower cannot containe; For here is the true excellency of this sort of Trenches, and thus should all thy floating Trenches be made.

As soon as thou hast brought thy water upon thy Land, and turned it over, or upon it, then as afore said be sure thou take it off as speedy as possibly, and so faile not to cut out thy worke so, as unlesse thy Land be very sound, and thy Land floud Rich, thou must take it off the sooner by a deepe drayning Trench, no further from this then the water and Land will beare it therefore I prescribe thee no certaine breadth betwixt floating and drayning Trenches, but if thy Land is sounder and dryer, or lieth more descending thou mayest let it run the broader, and as the Land is Moyst, Sad, Rushey, and Levell, let it run the lesse breadth or compasse, and be sure thou make the drayning Trench so deepe, that it goe to the bottome of the cold spewing moyst water, that feeds the Flag and Rush; for the widnesse of it Use thy owne liberty, but be sure to make it so wide as thou mayest goe to the bottome of it, which must be so low as any moysture lyeth, which moysture usually lyeth under the upper swarth and second swarth of the Earth, in some Gravell or Sand, or else, where some great Stones are mixt with Clay, under which thou must goe halfe on Spades grasse deepe at least: yea suppose this corruption that feeds and nourisheth the Rush or Flag should lie a yard or foure foot deepe, to the bottome of it then must goe, if ever thou wilt drayne it to purpose, or make utmost advantage of either floating or drayning, without which thy water cannot have its kindly Operation for though the water fatten naturally, yet still this Coldnesse and Moysture lies gnawing within, and not being taken cleane away it eates out what the water fattens. And this also I must desire thee seriously to observe that as soon as thy Water hath spent it selfe, and the Earth or Grasse hath exhausted and drawn out of the Water her strength and richnesse, then how long soever it runs longer and further it prejudiceth and corrupts it by breeding the Rushes in abundance: For this seriously observe, That the water running trickling among the Grasse, and upon the Earth, leaving her Thicknesse, Soyle or Filth, which I call Richnesse, among the Grasse, and upon the Earth, and it selfe runneth away into the drayning Trench, and troubles thee no more, and so the Goodnesse of the water is

How to  
make the  
drayning  
Trench.

Shewes  
how the  
water is so  
fruitfull.



as it were Ridled, Screened, and Strained out into the Land, and the Leanesse Slideth away from thee, which can never be done, neither so speedily, nor so purely by standing in Lakes or Pooles, besides the losse of the Grazing, which may be as good in Winter as in Summer, upon a good Land-flood or rich waters.

## CHAP. V.

*Shews the cause of watering, its fruitfulnessse, and the proper season, of watering Lands.*

**A** Rich Land-flood is ever the washing downe of great Road wayes, Common Feilds under Tillage, or else from great Towns, Houses or Dunghills ; The riches whereof is unvaluable ; Consider the goodnesse of thy water, if thy water be a rich Land-flood, or a lusty gallant Streame, it will run further with life and fruitfulnessse. If leane, thinne, and only from Springs and Hearbs, or green Soard, tis more Barren, and so wil operate upon lesse Lands, so that as I said before, thou must well observe both Land and Waters sutablenesse, and so increase the latitude or breadth of thy Land thou intendest to improve, with that streame, before it fall into his Drain ; Which Drain thou must digg, or make straight downe as it were by a Perpendicular plume-Line, which will draine the best of all, or else thou mayst make thy Draine, or Trench, some what Taper (*viz*) Narrower, and Narrower downe-wards, which will keep open the best, and continue longest, and for the Widenesse of it, that must be resolved both from the nature of the ground, which if Sound, and Dry, will require the lesse, but if Moyst and Boggy, the Greater and Deeper ; or else from the quantity of water it is to receive, that so it may carry it all away plausibly within it selfe, and for the drayning Trench, be sure thou indeavour to carry it as neare upon a straight Line as is possible, the Reasons shall afterward appeare : This worke is of more advantage, and more to thy profit then thou imaginest, but thy exercise therein will teach thee more.

How to  
make the  
Drayning  
Trench.

The floa-  
ting sea-  
son.

Vpon  
moyst  
Land.

Vpon  
warne  
Land.

Thou must also well consider the proper seasons of the yeare, bringing on thy water, which is in the beginning of Winter, when Grasse groweth least, and begins to faile, and is cleane eaten off thy Land ; all Winter long is very seasonable for this worke ; And the best season to take it off, is in or about the begining of *March*, thou maist make what Improvement almost thou desirest, especially upon thy moyst, cold, Land, if thou observe the directions given.

But for thy warme sound Land thou mayst continue thy water, and keep it working upon thy Land, almost all the year round, Provided that thou keep



keep it not too long upon a place, for thou must be sure to have an especial eye, that thou soake not thy Land too much, that Cattell treading, or Grazing upon it, foyle it not, for then the Rush will come upon thee, and it will over-grow thee, and exceedingly prejudice thy hopes, (mistake me not) I speake not here to advise thee to continue thy water thus long upon one place, but be ever removing it from place to place, but especially to shew the proper seasons to make use of this Piece of Improvement.

Thou hast also another great advantage hereby having water drawne over by Land, thou art in such a Capacity, that in case of drought in time of Sumner, thou needest not to feare it, thou mayst now and then wet over thy Land in the heat thereof, when Grasse if it have but Moysture, will grow far faster in so hot a time then any, but be sure not, to soake thy ground too much; Keep thy Land rather in a thirsting condition, not glutted, ready to spew it up again, so mayst thou preserve thy Land green, and fruitfull, when others are Scorched all away, Then may a weeks Grasse, or a Load of Hay possibly bee worth, Three, or Foure.

A double Advantage of having a water-course cast out. President of one year cutting but five or six and the next twenty foure. President of sandy Land.

I my selfe by these opportunities, have cut twenty foure Load in a Meadow, where I cut but five or six the year before, when Hay sold at a great value; The directions exactly followed, I lose my Credit if thou faile of the effect promised.

And for thy encouragement I will give thee a president or two: Certain Acres of light, sandy Land, were taken for a Term of one and twenty years, at the value of one shilling six pence per Acre, and that was more then it was worth, a little Brook with a Land-flood, issuing out of a Common Field, was brought over it, the Land levelled and made fit and even to receive it, for it was very Irregular and of great high Ridges and Furrows before (after the manner of that Country) and after two yeares working, thirty shillings an Acre would have been given for it, for I my selfe offered it, and some of that Land also was my own, but it was refused being wrought just by the aforesaid Directions. I have made the like Improvement my selfe upon Lands of the same nature, to as great Advancement as is here spoken of, too tedious to discourse. Mr. Platts also in his Book, produceth a president of Lands, Improved by water, with the charge of three hundred shillings, to be worth three hundred pounds per annum, but what it was worth before, hee saith not, but no question, a very great Improvement, I beleieve it was.

Mr. Platts President.

As for Boggy Land also, I have recovered severall Pieces next to plaine Quagmires: The means of reducing whereof shall be discoursed by themselves in the next Chapter: So bad and boggy it was that Cattell could not Graze upon it out of danger; And indeed it bore nothing but Cattails; And by this course I recovered it to perfect soundnesse, and made it worth

President of Boggy Lands.



betwixt Thirty and Forty shillings per Acre, and so dare undertake the like where ever, lying under the aforesaid Capacities : Many more presents of this nature, are visible in many parts of this Kingdome, Some as great improvements as these, Some lesse, and yet very great ; And all done without any other Cost or Expence of charge, in any other materials then Poore mens labours : Which to me is a second Argument of Incouragement, to promote all workes of this nature under these Capacities. One thing more I pray thee observe, that though it be the common practise of most men, to make many shallow Trenches of about one foot deep, & lay their Mould on heaps, that so they may spoyle but little ground, both which I must needfully reprove as ill Husbandry : For though I am all for Floating, and Drayning, which will necessarily occasion many Trenches, yet I am an Enemy to this ordinary and usuall way of Trenching, I fill for so many Trenches, I conceive no need in these workes, nor upon any Land whatsoever, but something more of them, more seasonably in the second Piece of Improvement.

Too much  
Trench-  
ing is  
madnesse.

#### CHAP. VI.

*Sheweth the true Artificiall making of the Floating Trench, and how to leuell Land. and the suddainest way to Soard it.*

There are  
two sorts  
of Trenches.

Manner  
of making  
the float-  
ing trench

**U**suallly I shall advise, to make not above Two, or three materiall Trenches, having first taken up thy Turfe, just under the Grasse rootes, both thin and square, and as broad as can be taken up, which I exceedingly prize for many uses, and preserve. The one I call a Flowing, or Floating Trench, wherein I carty my water : which usuallly after I have brought my water where I intend to worke it ; I carry it in a Trench seldome above one foot deepe, and many times not above six or eight inches deepe : that so it being made Artificially, (*viz.*) So leuell and taper and Narrower and Narrower as aforesaid, the further it goes, that it may so cast out the water, that it may flow over the same for a furlongs length all at once, which is the Excellency of it ; And then another drayning Trench running paralell with this, or Two if the Land lye very flat : And a great quantity in Latitude all along the worke, and of such a depth as it may not onely receive all the water that Floweth over the Land clearly, but that it may also drayne away the cold Moysture and Bogginessse that offends the Lands, by breeding either Rush or Bogg, and of such a Latitude, or breadth, from my floating Trench, as I think my water is of strength to Improve, without Prejudicing of it, by breeding Rush, Flag, or filth, as aforesaid ; And as I make not many Trenches, so I shall fill up all others that are not serviceable to these, and so have done many a one, that others have made



to Drayne their Land withall, and with this One or Two Draynes cast out, in the lowest part of my Land, layed dry more Land then a hundred of these common Trenches would, for a thousand Trenches made above the Corruption that feeds the Bogginesse, or Rushes, never Draynes, or takes away the cause, that the effect cannot possibly cease. As for heaping the Earth, and moyling the ground, that I also conceive may be prevented, by maintaining one Horse and Cart, and sometimes a couple of Wheele-Barrowes, or a double Wheele-Barrow with two wheelles, made big enough for two men to wield, and into them I cast my Mould, as I dig or cut out my Trench, and so carry it away when I first dig it, either into some old Trench, or hollow place, and there lay it, and then take my Turfe, which I took up in all my other Trenches and cover over that Earth, and there will be as good Soard that yeare, if it be laid before *February* enter, as in many parts of the Field beside. And so shall save both the labour of removing my heaps afterward, and the spoyling of so much Land as they would cover. And for the better carrying on this Improvement by water, if thy Lands be either Hilly, or Banky, or ly high Ridge, or furrowes, upon which thy water will never worke kindly, take a Direction or two for the more easie Levelling of the same (how to levell or playne Lands for watering most easily, and Artificially) which thou mayst doe either of these two wayes, Either of which I cannot more especially commend unto thee, thine own Experience will demonstrate that.

The first is Levelling by the Plough, which thou mayst doe by two or three plowings, and gain a Crop also if thou rather affect it, herein thou wert best to begin about the latter end of *September* first to plow thy Land, which I advise to cast, as most men do a Fallow, and then in *December*, be sure to give it a second plowing just overthwart all the Lands, and so cut the Turfe, that the Soard may have all the Winters frost to wroxe, and moulder it, which towards *March* thou mayst plow again, and so cast it, or raise it, as thy Land requireth, to bring it most even, and levell, and if one more Plowing will not do it, then thou must do more, and harrow it also, to draw down high places, and fill up Valleys, and if it yet be too Irregular, and some places so high, that the Plow and Harrow will not bring them down thou must get some Labourers, with their spades, and take downe those places, and cast them into Regularity; A Labourer with a Spade upon this wrought Land will do abundance in a day; but the most Exact and curious in Levelling thy Land, it brings more Advantages then thou art aware of, or I have time to shew; And then about the middest of *April* sow thy Lands with such seeds as are most suitable to the nature and richnesse of it, but sow it not too thick by any means nor too thin neither but the thinner is thy Corn, the stronger will it be, and the more Grasse will grow among,



The speediest Soaring of Land.

among, which will help thee more in the Soarding of it, then hinder thee in the Crop of it, which Crop may pay a considerable summe towards this Charges ; But if thou desire a more speedy Soarding of it and hast no respect to the present profit, nor charge, in respect of a sudden dispatch of it, then as before, so soon as Grasse begins to stand at a stay, and growes but a little, plow thy Land a thin broad furrow exceeding Exact and true, and as soon as thou hast plowed it, cut it all at such length, as thy Turfe may hold taking up, and heap thy Turfe upon the next Land, and then plow thy Land again and cast it down, and if it lye exceeding high, cast it twice and then two men with their Spades will levell any uneven Hill or Ridge most easily, and thou mayst either with the Plow or Spade, or both, immediatly bring it flat, and then take this Turfe, by all means before the grasse be killed, or deaded, and lay it down as thou ploughedst it up, every Joynt meeting and closing as even as thou canst possibly, and expect how much soever thou canst make plain, and Levell before *February*, thou mayst reape great Fruit, or a good Crop of Grasse that Summer, especially if thou hast Water to Float it withall, and when thou hast done One Land then thou mayst remove thy Furrowes, or Turfe, to that thou hast levelled, And work that Land accordingly as the other, and then Turfe it also, and so go forward throughout thy Field one after another.

Levelling Land by the Spade.

Some others have Levelled all by the Spade, and by that means they have more certainly mixed their hungry Land, and fat Land more equally, and layed it down all alike hereby, which course also I very well approve, and if a man have very good Toolles, and Irons made on purpose, one to cut out his Turfe, and another to take it up square, and even as bigg as it will possibly hold to take up, or a man can easily raise with his naturall strength, which Toolles are hereafter to be discoursed in the ninth Chapter, hee may very neere dispatch as much, as otherwise is directed, especially if the Land be very uneven, I have had a man hath taken up Turfe all day long neere two foot square, if not above, and heaped the same, and three other men have followed and levelled, and he hath also layd and planted down the same, as fast as they could levell it : you cannot possibly believe how fast worke will go forward, with true Artificiall Toolles made exact to every purpose, and how much delight men will have to work with them.

A president what one man hath done at Turfing and levelling Land.

And having brought your Land thus levell, then your water wil work most gallantly, and even, Floating every place Proportionably, which you must take especiall care of, and not suffer it to run a whole Stream over some, and scarce discernable over other parts, but be sure every where alike, and when you have your water over your Land, that it run over it with a constant thin Stream, it will Improve fast enough, for soaking water breeds the filth, which you must avoyd, as the most Pestilent Enemy to this Husbandry.

The



*The second Piece of Improvement, which is the Drayning, or Reducing of Boggy Lands, to sound Pasture, is further discoursed in the Chapters following.*

**T**He seventh Chapter followeth, wherein is to be handled Drayning, or taking away Superfluous and Venemous water, which lyeth in the Earth, and much occasioneth Bogginess, Myriness, Rushes, Flags, and other filth, and is indeed the chiefe cause of Barrennesse, in any Land of this nature; Some thing I have already spoken as to Bogginess, that lyeth under a Capacity to be floated with water, either River or Land-floods, In the Reducement whereof, you must precisely apply your selfe to all parts of the former Chapter, for bringing your water upon your Land, and working it also, and taking it off againe, especially that your Drayning Trench, or Trenches (for possibly in this sort of Land more may be required according to the nature of the lying of your Land, if Uneven, and full of Dales, and Vallies) be made one Spades graft or pitch below the matter of the Bog; I meane the Spring for so it is, which must bee clearly Drayned, which I cannot too oft remind you of; But now I onely speake to those Lands which are from under such a Capacity as those that are covered with constant Water, and Lakes, or else the Boggy, Mirey Lands, it self, and have no River, or Land-flood to be brought over them, and the remedies being equally Applicatory to both for the most part, I will propose generall remedies. I say that Drayning is an excellent, and chiefe means for their Reducement; and for the depth of such Draynes, I cannot possibly bound, because I have not time, and opportunity, to take in all circumstances, therefore in generall thus.

Be sure thy Draynes be such, and so deep as thou hast a descent in the end thereof to take away all thy water from thy Drayne, or else it is to no use at all for suppose thou make thy Drayne as high as an house, and canst not take thy water from it, thy worke is lost; for looke how low soever is thy lowest levell in thy Drayne thou mayst drayne thy water so low, and not one haire breadth lower will it drayne thy ground then thou hast a fall or descent to take it cleanly from thy Drayne; therefore be especially carefull herein, and then if thou canst get a low descent from thence, carry thy Drayne upon thy Levell untill thou art assuredly got under that moysture, myriness or water, that either offends thy Bog or covers thy Land; and goe one Spades graft deeper by all means or thereabouts, and then thou needest not tye thy selfe precisely to a dead Levell, but as thy ground riseth, or as the moysture lyeth higher, so maist thou rise also, so that thou keep one Spades graft as aforesaid under it; and that thou maist not faile herein, observe that in Cold Rushey Land this moy-

*How to make thy Drayne to drayne a Bog to purpose.*



Where  
water  
lyeth in  
Rushy  
Land.

sture or cold hungry water is found, beneath the first and second swarth of thy Lands; and then oft-times thou comest immediately unto a little Gravill or Stoniness, in which this water is, and sometimes below these in an hungry Land, and many times this Gravill, or Stoniness lyeth lower as aforesaid; but in Boggy Land it usually lyeth deeper then in Rushy, but to the bottome where the spewing Spring lyeth thou must goe, and one Spade depth or graft beneath how deepe soever it be, if thou wilt drayne thy Land to purpose. I am forced to use Repetitions of some things, because of the futableness of the things, to which they are applyed; as also because of the slownesse of peoples Apprehensions of them, as appears by the non-practice of them.

How the  
water  
that feeds  
the Bog,  
where  
that lyeth.

Every  
Bog hath  
most cer-  
tainly a  
living  
Spring  
within it.

And for the matter, or Bog-maker, that is most easily discovered, for sometimes it lyeth within two foot of the top of the ground, and sometimes and very usuall within three or foure foot, yet also some lye far deeper, six, eight, or nine foot, and all these are feazable to be wrought, and the Bog to be discovered, but until thou come past the black Earth, or Turfe, which usually is two or three foot thick, unto another sort of Earth, and sometimes to old Wood, and Trees, I meane the proportion and forme thereof, but the nature is turned as soft, and tender as the Earth it selfe, which have layen there no man knows how long, and then to a white Earth many times, like Lime as the Tanner, and white Tawer takes out of their Lime-pits, and then to a Gravell, or Sand, where the water lyeth, and then one Spades depth clearly under this which is indeed nothing else but a spring that would faine burst forth at some certaine place, which if it did clearly breake out, and run quick and lively as other Springs doe, thy Bog would dye, but being held down by the power and waight of the Earth, that opposeth the Spring which boyles and workes up into the Earth, and as it were blows it up, and filleth the Earth with Wind as I may call it, and makes it swell and rise like a Pusball, as seldome or never you shall find any Bog, but it lyeth higher and rising from the adjacent Land to it, so that I beleeve could you possibly light of the very place where the Spring naturally lyeth, you need but open that very place to your Quick-spring, and give it a cleare vent, and certainly your Bog would decay, by reason whereof it hath so corrupted and swoln the Earth, as a Dropie doth the Body for if you observe the Mould it is very light, and hollow, and three foot square thereof is not above the weight of one solid foot of naturall Earth, Clay, or Land, whereby I conceive that how much soever this Mould is forced from the naturall weight, or hardnesse of solid Earth, or Clay, so much it is corrupted, swolne, or increased, and blowne up, and so much it must be taken downe, or let forth, before ever it be reduced; I therefore prescribe this direction, viz.

Goe



Go to the bottome of the Bog, and there make a Trench in the sound ground, or else in some old Ditch, so low as thou verily conceivest thy self assuredly under the Levell of the Spring or spewing water, and then carry up thy Trench into thy Bog straight through the middle of it, one foot under that Spring, or spewing water upon thy Levell, unlesse it rise higher, as many times the water or Spring riseth as the Land riseth, and sometimes with very levell unto the very head of thy Bog, unto which thou must carry thy Drayne, or within two or three yards of the very head of it, and then strike another Trench overthwart the very head both waies, from that middle Trench, as far as thy Bog goeth, all along to the very end of it, still continuing one foot at least under the same, and possibly this may worke a strange change in thy ground of it selfe, without any more Trenching.

Shewing how every Drayne must bee carried up from a lower level, then is the bottome of the chiefe Drayne.

But for these Common and many Trenches, oft times crooked too, that men usually make in their Boggy grounds, some one Foot, some Two, never having respect to the cause or matter that maketh the Bog to take that away, I lay away with them as a great piece of Folly, lost labour and spoyle; which I desire as well to preserve the Reader from, as to put him upon any profitable Experiment: for truly they doe far more hurt than good, destroy with their Trench and Earth cast out, halfe their Land, danger their Cattell, and when the Trench is old, It stoppeth more then it taketh away, and when it is new, as to the destroying the Bog, it doth just nothing, only takes away a little water, which falls from the heavens and weakens the Bog nothing at all, and to the end it pretends, is of no use, for the cause thereof lyeth beneath, and under the bottome of all these workes, and so remaines as fruitfull to the Bog as Before.

Shallow Trench reprehended.

Or thus thou mayst worke it some what a more certaine way, but more chargeable, viz. after thou hast brought a Trench to the bottome of the Bog, then cut a good Substantiall Trench round about thy Bog, or two or three yards within thy Boggy round, for so far I doe verily beleieve, it will Drayne that which thou leavest without thy Trench of the depth afore-said, that is underneath the spring water round; And when thou hast so done, make one work or two, just overthwart it, upwards and downwards, all under the matter of the Bog as is afore-said, and in one years patience through Gods blessing, expect thy desired Issue; and if it be in such a place as will occasion great danger to thy Cattell, then having wrought thy Workes, and Draynes as afore-said, all upon strait Lines, by all means, prevent as many Angles, Crooks, and Turnings as is possible, for those will but occasion stoppages of the water, and filling up of Trenches, and losse of ground, and much more trouble, then otherwise. Then thou must take good green Faggots, Willow, Alder, Elme, or Thorne, and lay in the bottome of thy workes, and then take thy Turfe thou tookest up in the top

The most sure way to destroy a Bog.

The prejudice by crooks & angles in water course.

How to make Draynes without any prejudice to any sheep, or of beast.



The best  
way of  
preven-  
ting dan-  
ger to  
Cattell in  
Drayning.

Fens and  
Marshes  
recovery.

Floating  
best de-  
stroyes a  
Bog.

The pro-  
bablest oc-  
casion or  
first cause  
of Boggi-  
nesse.

of thy Trench, and Plant upon them with the green Soard downwards, and then fill up thy workes levell again, untill thou come to the bottome of thy Bogg, where thy Trench is so shallow, that it will not indanger thy Cattell, or rather take great Pibble-stones or Flint-stones, and so fill up the bottome of thy Trench about fifteen Inches high, and take thy Turtle and plant it as aforesaid, being cut very fit for the Trench, as it may joyne close, as it is layed down, and then having covered it all over with Earth, and made it even as thy other ground, waite and expect a wonderfull effect through the blessing of God; but it thou mayst without eminent danger leave thy workes open, that is most Certain of all. I might make more particular Application of the premises to the drowned and covered parts of the Kingdome or Fens, and Marshes, and many other parts of England, upon which they will have such an Operation, as to reduce them to perfect Pasture, and to great profit, and to all sorts of such natured Lands, thou mayest apply them, and save me much labour, being the main means of Fenne Drayning; As for Sluces, Flood-gates, Waires, and Dams, are but secundary, because I intend as much brevity to make plain my Discourse as I can possibly use; But if thou canst by any means make thy selfe capable of bringing any constant Stream or powerfull Land-Flood and Water, and constantly Flow over the same, as in the former Chapter, that will reduce it to a greater Advance, and work the most certainest destruction to the Bog of all, as I have before declared by Experience; and therefore of Fenne-draining or Bog-destroying, I will say no more for present; here I intend onely an Abstract of my thoughts, to kindle Affections to the Work, and hereafter (if God please to give another Opportunity) I shall more largely Discourse of further Experiences herein, as I have both seene and heard, and am now indeavouring more certain Trialls of them; yet a little more thereof will follow in the next Chapter.

As I conceive, the Bogs in many parts of the Kingdome were occasioned thus: where-ever is a Bog, I am confident was formerly a Spring, which Spring, running and venting it selfe, kept the Land round about it, low, and dry, as where most clear Springs are it is this day, but the said Spring stopping up, either with leaves or Cattells treading or wood falling upon the same, or other filth (for I believe many, or most parts of the Kingdome, was very woody in former Ages) the Spring was stopped, that it could not clearly vent, and so being a Living water, would not be suppressed, or buried, but swells and boyles up into Bogginesse, and so vents it selfe by little and little in a greater Compasse of Land because it cannot break forth cleare together in a lesser, because of the pressure and weight of the Earth upon it, and this is the most naturall cause thereof that I can gather; And my Reason is this, In many Bogs (I will not say in all) I have found great Pieces,



Pieces, or Boughes, or Bodies of Trees lying in the bottome of the Bogge Foure or Five foot deep, in the full proportion of a Tree, or bough, as it fell in, but when you come to take it up, you may cut it with your Spade just as you do your Earth, and it goes to Earth, but how this should come so low, and lie so deep, and so familiarly in Lands of this nature, and not as frequently upon sound Lands, I cannot conceive otherwise then as aforesaid.

## CHAP. VIII.

*Treaties of Fenny, Marsh Lands, and the means of their Reduement.*

**T**Here is also much Boggy and Miry Land that may be reduced to Advancement, and such capacity as some may lye under, may be Improved Twenty fold or more. And as for course Marsh Lands upon both Fresh and Salt waters, there hath been such gallant notable Achievements, by many Accurate and Ingenious spirits, to whom the Kingdome oweth high Acknowledgements, and whose workes, and Experiments I must admire and Honour, To whom I desire to be a Pupill : Yet notwithstanding their Discoveries, and their Workes, cut forth throughout the Kingdome, and left to Idle Practitioners, and Sloathfull Impatient Slubberers, who have not only done it by the halves, but stifled many a gallant plotted Opportunity of a far greater Advance then it hath produced ; And so possibly in many parts of the Kingdome there may be great Reparations of these Ruines, and a certain Reduement to high Advantage ; As also some Addition possibly to their Modell, or some Increase to their beginnings, Which is acknowledged farre easier then the first Projection, to which if bee applied what before hath bin briefly spoken in the latter end of the aforesaid Chapter, Expect some Advantage for the present, in the application of these briefe Directions, and in thy waiting but a little and Experimenting former Rules, mayst possibly meet with more Discoveries, untill thou hearest more hereof.

Marsh Lands.

The first Fen Drayners, or Levellers highly to be honoured.

Invention far harder then in Addition to it.

The last way of Improvement of these sorts of Lands, prejudiced by water, is a way applyable to every other sort of Land what ever, which lye under that Opportunity, or Capacity, which is the cutting strait the water-courses of little Brookes, and Streams that runne many times, in a spirall line, and sometimes Circularly, as they would make the figure 8. and so lose as much more Excelient Land as need be, nay in some places twice or thrice so much, besides these Angles, Triangles, and almost Squares, and Circles much Indangering Cattell by Goaring, rushing and thrusting them in, and also make such stoppages, and Oppositions to the water, that hinders the

Cutting water courses strait no small Advantage.



Current of it, and occasioneth it to lye Soaking on the Land, that it either breedeth Rush, Flagg, or Mareblab ; Also the aforesaid Direction is a great means of laying sound much Land overcome by Bogginessse, the water lying so upon it, that it Drowneth or stiflith a great part of the fruitfulnessse of it, yea, suffocateth and choaketh others also bordering upon it, no small Prejudice to the Kingdome in generall, and too many Townships and persons in particular. A strait Water-course cut a considerable Depth in a thousand parts of this Kingdome, would be more advantagious then wee are aware of, or I will taske my selfe here to dispute further. And though many persons are interessed therein, and some will agree, and others will oppose ; one Creek lyeth on one side of the River, and another lyeth on the other side, and divers men own the same, why may not one Neighbour change with another when both are gainers ? If not, why may they not be compelled for their own good, and the Common-wealths advantage ? I dare say thousands of Acres of very rich Land may hereby be gained, and possibly as many more, much amended that are almost destroyed, but a Law is wanting herein for present, which I hope will be supplied if it may appeare Advancement to the Publike ; for to Private interests, it is not possible to be the least prejudice when every man hath benefit, and each man may also have an equall benefit

## CHAP. IX.

*The ninth Chapter giveth directions to make and use certain Toolles, or Instruments, which shall much facilitate the Worke.*

Toolles  
belonging  
to float-  
ing and  
Trench-  
ing, to  
make the  
worke  
more ea-  
sie & lesse  
chargea-  
ble.

**A**ND for thy further encouragement, because Drayning and Trenching is found very chargeable, therefore in the third place I will deliver certain Toolles or Instruments, which shall make the worke more facile and delightfull, with which two Workmen, ( and indeed any Ingenious man may quickly attain a handinessse, and dexterity therein ) that can well handle them ; shall doe more then many common Labourers do in one day with their ordinary Toolles, and shall worke more true, and more suitable and commendable to the nature of this way of Improvement ; which Toolles are all very plain, and simple, without severall motions, or divisions made only for ease, lightnesse, and quicknesse, not for Admiration or Confusion.

A good  
Line.

The first is a good Line about thirty two yards long, made of the best water-wrought Hempe, and as bigge again as Whipcord, upon a good Reece to wind it upon ; I prescribe this length because of drawing of all Workes as neere unto a strait Line as possible may be ; which length is of use in mea-  
suring



asuring your worke by the Pearch or Rod as you desire also, and no more of this.

The second is a water Levell about five foote long, the longer the better, but that it will be the far more unportable, but foure foote and an half will doe reasonable well; which Instrument many have assayed, and made, some open with a Channell for the water to run all along upon a three-inched Piece of Oake, with sights placed at each end, true to the water, that is each sight of a just proportion from the water, to direct the Levell, but this lyeth so open to the Wind, and is troublesome removing, that it is not worth prescribing.

Others have used them of seven or eight foot long, to be placed on two or three legs, as the Surveyor placeth the plaine Table, the Levell made with an hollow Concave, for the water to lye hid from the wind, and to come up in two Cups (above the wood) planted in the Levell, and sights planted very Artificially thereto, the water in each Cup holding his just proportion to both sights, and this is a very good one, but very troublesome to remove up and downe, and to make dispatch when one hath need, And in this second forme were Sir *Edward Peto* his Levells made very coltly, and the Sights of good value; but I rather chuse a plainer Piece which is very Portable, and it is made to fold into another square Staffe, and so to carry like an Hunting-Pole; my Staffe is but five foot and an halfe long, made of the best young seasoned Oake that can begot; my Levell, or the Barrell of it is but foure foote and an halfe, or five foot long, which Barrell in the midst of it, is planted into the top of my Staffe thus; Just upon the midst of my Barrell is a paire of Iron joynts curiously wrought into the very midst of my Barrell, on the neather side of it, and at the very upper-end of my Staffe, and so much of the the one part of my Staffe, and just halfe the length of my Barrell taken away with a moulding or rabatating plaine, untill both joyned together with these joynts make one compleat staffe strait, and formable, only about a quarter of an Inch taper upwards, from the bottome to the top, that it may not be too top-heavy, and the sights are to bee fixed unto both ends of the Levell Barrell, that they stand firme and hold water, and yet are very little or no annoyance, either to sight or practice; And in the portage of it, it is a faire strait Staffe, with a strong Pike in the bottome of the Staffe, and a step to set the foote, or force it into the ground where there is no occasion to use it; And in the Exercise of it, being unfolded it is an headlesse crosse, not much unlike the Surveyors crosse Staffe; which when thou hast done thy worke thou mayst fold it up againe, and walke as with an Hunting-Pole. Any good Gun-smith will make the Iron-worke, and some Gun-smiths will make the Wooden-worke also with direction, but properly it belongeth to the Joyner.

Sir Ed-  
ward Peto  
his Level.

The man-  
ner and  
forme of  
the truest  
and speed-  
iest Le-  
vell.

kers of it.



The  
trenching  
Plough.

The next is the Trenching Plough, or Coulter, whose speciall use is to cut out the Trench on both sides with great expedition, which is thus made; Take a Peice of the best tough Willow, about the bignesse of a Spade-stayle somewhat strait; only at the neather end it must looke upward with a neck like a foote which must run upon the ground, and just above the neck must be an Iron, or little Coulter about the strength of a Butchers Knife, planted in the stayle, where the stayle must be plated with Iron, curiously let into the Wood on both sides, through which, as also the Wood, the range of the Coulter must come, with a Cotter-hole in it above, to cotter it close to the upper-side of the Staffe, or rather have two Coulters, one about an Inch and halfe longer and stronger then the other, that so in soft deep ground thou mayst use the longest, and in dry ground the shortest.

Whose use is, when that thou hast cast out thy Trench, and set thy Line, thou maist with this run along thy Line, and cut out one side of thy Trench, almost as fast as a man can follow it, and then set out thy other side, and cut it out also; but if thou studiest more exactnesse, then in the foot of thy Staffe, and in the middle of thy foot, plant a little Brazen Wheele about foure Inches high, that so the foote may beare it selfe a little upon the Wheele, which will occasion it to run more pleasantly; but the Wheele must also be curiously planted into the foote with Plates, and upon an Iron Axeltree, wherewith thou maist cut out a Pearch, whilst some will be cutting out two yards, and more true and certaine; and so also maist thou use it speedily to cut out thy Turfe over-thwart thy Trench about eighteen Inches, or twenty Inches broad, a fit proportion to be taken up, or sometimes two foot broad; for if thou wouldest take up all thy Turfe as curiously cut square and pared up about three or foure Inches thick all of one thicknesse, just at the root of the Grasse as aforesaid, of which thou maist make exceeding great use, which thou must preserve most choicely, for therewith thou maist cover thy bare places of Earth, or any low places that thou wouldest raise up to a Levell, and maist have as good Grasse upon it within halfe a year better then upon the other Lands; For the taking up of which Turfe thou must make a Spade on purpose, with a bit looking up twice so much as our ordinary Spades doe, with a curious thin shooe looking up also; whose bit must be exceeding well steeled, and more broader at the point, or neather end of the bit, then at the upper end about halfe an Inch and not above by no means; which will take up the Turfe all at one thicknesse, just at the naturall height a man useth it, as he stands to shovell Earth before him. This Spade is admirable usefull, to cleanse the bottome of Trenches, for which use it were very necessary to have another an Inch and halfe narrower then the former, for lesser and narrower Trenches; which Spades the (broadest sort of them) are speedy, and more  
easy

Turving  
Spade.



easy for banking and levelling high places, and great Ant-hills, by farre then other Common Spades are.

The next Toole that is to be shadowed to thee is the Trenching Spade, The trenching Spade. which you make betwixt Foure and Five Inches broad, and if you make Two which is better, One may be Foure Inches, and the other may be Six Inches wide, whose Tree must be made more compasse, and looking up, by farre, then your usuall Spades are, yea somewhat more compasse then your turveing Spade is, though but a very little, so that it may carry a Trench Levell before you, being forced by your strength of Arme, guided from about the bottome of your Belly, as you use the Shovell in any thing you cleanse; which Spade shoee must be made with two sides, or Langers, up from the end of the bit, like as if you would plant two broad Knife Blades to looke upwards with their points upon a common Spade, from the end of your Spade bit, only they must bee made a little stronger, yet they need not bee above two Inches broad at the very bit, and as thin as the strength of the worke will beare, little thicker then a strong Knife, and so Narrower and Narrower upwards, untill it come to halfe an Inch, and about Five Inches long, which must be made very exact, and true, smooth, and sharpe, otherwise it will not worke forth his Coare, and furrow clearly, and easily, but will be above a mans naturall strength; but if it be rightly made, any man may easily worke forth a Trench at one time, and very fast, almost as fast as a man can thrust a Shovell under a little Sand or Dung before him. Some have assayed to make this Trenching Spade rudely and in other formes, which I will not stand here to disprove, because their own Experience hath layd downe the use of them, but this I am certaine of in my own knowledge is wonderfull usefull, and herewith one man may do more in such worke as this (which to make greater Trenches is but to make more worke to no purpose,) and that more formally and Artificially, then six men can doe with their owne naturall and usuall Toolles, and they shall moyle and spoyle lesse ground by many Degrees, which Toole so cutteth out his Furrow and coare, that you may within a weeke or two, or when you have accomplished your desire, lay it downe againe, and no whit prejudice the least grasse, and none shall bee the wiser for it, or Discover within two or three dayes whether such a thing was yea or no; and so will prevent the least spoyle.

There is another Toole or two as usefull in these workes and no lesse The Paring Spade necessary, and this is the Paring Spade or dividing Iron, whose bit may be made all of Iron, being a strong Iron plate, with a good strong Socket, to put a strait tough Stale or Helve into, it must be made just strait every way, the bit must bee made twenty Inches long the two sides, and neather end all well steeled, the neather part of the bit a little belled or square, and the



The use of  
the paring  
Spades

the sides a little hollow or compassed, and the end sides as sharpe as they can bee made, for the especiall use of this is now and then to cut out a Trench in vallies, and low places, where thy plough cannot come at it, but principally to pare old Trenches after the first yeare, whose edges will grow so thick with Grasse, that thou canst not get thy water to passe currently, and to dig it will breake thy Trench, and cut it two thick, but with this thou mayst cut it as with a Cutting Knife all along thy Trench or Line, very fast, and most compleate; Thy Staile need not be so long as a naturall Spaid-staile, it must be kept cleane and bright, and it will worke exceeding easy; And thy ordinary Spades also the better they are and the sharper, and curiously kept, the better will they rid off worke by far, and the more easy, and delightfull to the Workeman, and not fur and glog with Earth, which makes the worke off very heavily.

## CHAP. X.

*Answereth severall Objections made against the Probabilities  
of so great Advance by Floating.*

Ob.  
These are  
but pre-  
tences.

**I**T may be some will object and say, that these Affirmations are but Pretences, no such Advantage or ease as is promised can possibly bee performed.

Ans.

But I say againe, many Gentlemen can witnesse the truth hereof: Many Lands can shew it, and if thou wilt not beleve Relation, beleve thy eyes, goe and see he who Prints my Booke, shall be inabled to direct thee, where thou mayst see more then here is affirmed.

Againe in many of the Wood-land parts in this Kingdome, as in *Worcestershire, Warwickeshire, Staffordshire, Shropshire, and Wales-ward, and Northward*, there are many more Improvements made upon course Lands then is in other parts upon better Lands, and the Improvements made in the Woodland-parts, speaks out the truth hereof; much whereof being most barren of all Lands, is Improved so high, as that it is at present as rich as many parts of the Fieldon, and fuller of wealthier Inhabitants. I give not all sorts of Presidents of Improvements I could, by far, but only a few here and there to quicken thy desires after them, the Experimenting whereof will bring more to thee, if not bring thee to them.

Ob.  
Watering  
breeds the  
Rush.

Another, he objects that it will breed the Rush, the Flag, and Marblab, and so this Floating Land shall bee more prejudiciall then advantageous.

Ans.

I answer, it's true possibly, and easily it may, as I have shewed before, but be thou carefull of my directions, consider thy Land if it be dry and sound,  
and



and thy water if it be fat and Ranke, and make the draynig Trench as afore directed, and never feare it, all the Difficulty is in the cold Land, and Barren water, on which also oblerve punctually my Directions, and Ile warrant it; Make thy Drayne deep enough, and not too farre off thy Floating Course, and water it with a good force of water, and observe the Seasons, which are all the cold of Winter when the Rush groweth not, It must have warmth to exhale, and draw it out, and be sure to lay thy Land sound, and dry by thy Drayning course that is got under that Moysture, Filth, and Venom as afore-said that maintains them and then beleeeve me, or deny Scripture, which I hope thou darest not, as *Bildad* unto *Job*: *Can the Rush grow without Mire, or the Flag without Water, &c.* but suppose it should breed some few (and the Mare-blab too) which is a signe thy Land begins to fatten, then take thy whole stream, or a good considerable streame, and bring upon that place, and over-flow it, as is afore directed in the third and fourth Chapter, in *December* and *January*, if it take them not away I will doe it for thee; floating Land will as certainly destroy the Rush, as Flag, and Mare-blab (being well drayned again) as work the least Improvement.

Especiall season for watering Land.

Iob. 8. 12.

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Thou wilt say, many men have made great Experiments this way, and done great workes, and cast up all again; Either the profits would not answer the charge, or else it would hinder some other Lands advance another way, or else could not bring their Land to their desired Improvement, or else doe so little as was not worth their labour.

Obj.  
Many have done great things herein and alway to no purpose.

I had hoped that I had laid down such undeniable grounds, and experiences, as would have removed all those Objections; but sith they are made, have patience, and I will return a particular answer to each clause of the Objection.

Ans.

1. I say, were all this true, as possible it may in some men, and in some parts, yet be not discouraged, because of what I have said, and the Experiences made are also obvious; and in the view of them thou shalt see more made advantage then is here affirmed.

2. And secondly to confirme thy Objection, I say, we had some Mountebanks abroad that have held out specious pretences of wonders, as many Ingeniers have done in drawing Water, or drayning Lead-mines, Tin, or Cole-Mines, and to that purpose have projected Engines with double, triple, and foure-fold Motions; conceiving and affirming every Worke, or Motion, would multiply the ease in raising the water, but not considering that certainly it must multiply the weight and burthen; And also put such an Impossibility of Tackles, Geares, and Wheelles for holding that all would fly in sunder at the very first motion, and continually one thing or other out of order, and snap in sunder as fast as mended, because of the great strength is required for motion; but those few Instruments here held forth.

Mountebank Enginieres projections. Mysterious Engines improved.



forth are plain, and simple, and my Projections nothing but Country Experiments, that I feare the plainnesse of them will be no lesse offensive, they being only to give a moderate ease and speed to so toyle some and costly labours.

3. I answer thirdly, that many have made some Experiments, but those I conceive have neither been full Experiments in all particulars, nor Regular according to the particular Directions here given; And so may as well spoyle all, As he that takes all or most of the Ingredients in a Medicine, and applyes it to the Disease prescribed, but either he misleth in the Composition, or else in the Application; or else if he be right in all he may faile for want of patience to wait the issue, but casts all away as worth nothing, and claps in with another Receipt; and so is able to give no positive Resolution what the Effect thereof might be; Therefore I say as before I have said, Trace me along in all particulars, and faile in none of them, and if the issue faile, Challenge the Author as a deceiver.

4. And that I may answer the full charge, I say, take my counsell for the severall Toolles proposed, and I question not that in most ordinary Workes, the charges shall not be any proportion to the profit: But say an Acre of Land should cost thee forty Shillings the fitting and preparing of it, as possibly some may, it may lye so Irregularly, 'tis then as possible in two years time, the same may be made worth forty shillings *per annum*; yea more, Many other Acres thou maist worke to as good an advantage for twenty shillings, some for ten shillings, some for five shillings, and some lesse; I could give the particular Experiments for them all, were it more necessary, then brevity, which I so much affect, and resolve.

And for prejudicing other Lands, it is almost as if one Hive of Bees should prosper more in one Garden then twenty would, the contrary Experience constantly manifesteth, and so I have done with this Improvement; And for Improving so little as is not worth the labour, that is as frivolous also; Many thousand of Acres in *England* are under this Capacity, and may be reduced to a twenty or a thirty fold Improvement; yea in some parts of the Kingdome, a thousand Acres together may be wonderfully advanced this way to a proportionable Advantage. and with lesse charge proportionably then a few.

*The third Piece of Improvement shewes how to Enclose without offence, and how to Plough any Land to great Profit, and not to the least Prejudice: but both to great Advancement.*



CHAP. XI.

*The Eleventh Chapter Treateth of Improving Land by Pasture, Reproves Depopulation, Proves excellent Advantage by Enclosure, and taketh away the usuall Scandals laid upon it.*

**T**His Piece of Improvement consists in a discreet and sober division of two foule extreames:

The one, is so for Pasturing, and Grazing, as he will destroy Tillage, and raising of Corne, so he may convert all to Sheep, Wooll, and Cattell; <sup>1 Ex-  
tream.</sup> though the contrary be of incomparable more Advantage, Credit, and Glory.

The other, all for Tillage, and Ploughing, that he will toyle all his dayes <sup>2 Ex-  
tream.</sup> himselfe and Family for nothing, rather then he will cast how he may improve his Lands by Impasturing, and Enclosing of it, whereby he may raise more profit in Corn and Cattell.

*For the discovering these particulars, I must divide it into lesser Pieces.*

And first I will consider each extreame, particularly by it selfe, and the usuall causes of mens Fostering and Cherishing of the same.

Secondly, I will demonstrate, that Pasturing may bee Advanced by Ploughing, and that Arable Land may bee Advanced by Enclosure, and both by vast advantages.

Thirdly, how both these may so be done, as in each particular they may redound to the great profit of all Rights concerned therein, by holding forth that Golden mean between them.

Fourthly and lastly how all this whole Advancement, shall distribute it selfe, in some just proportion of Advantage, to all Concernments, that chiefly the Common-wealth may have the largest benefit; but primarily the poore their particular Advantage; and then all others, in every degree, (as they have of right) shall have their Proportion.

And first that Pasturing may be advanced exceedingly, especially that which is so old as that it is over-run with Nettles, or Decks, and great Ant-hills bearing whines full of Prickes, like Gorse and Wilde Tyme, and little else, or else over-run with Mosse, that it will beare little else, of which are many of our second sorts of Pasture feeding grounds in England worth between Ten and Twenty shillings *per Acre*, and this Land of all other is most naturall to be advanced, and that by moderate Ploughing, for al- though I am an absolute Enemy to that accursed Depopulation, of laying <sup>Depopu-  
lation ac-  
cursed and  
reprehen-  
ded.  
Esa. 5.8,</sup> House to House, and Field to Field, till the Poore be destroyed, And say A-  
men



men to that curse pronounced, and beg of God to reveale a way of Reformation of it.

Not  
Ploughing  
old Pa-  
sture, a  
great Ene-  
my to the  
Kingdom.

So am I also to our Common way of Ploughing Pasture Land, no less an Enemy; which is, as long as it will carry Corne (out of a greedy desire of the profit it brings with it) neither looking at the losse, the Land-Lord suffers by letting it at an under-value, many years after, which many times is as much as they gain by Ploughing; I have known Land not in seven years come to the old Rent, some not in Ten, and some possibly never; Nor at the prejudice it may be to their posterity hereafter, Nor at the ruine and destruction of their Land, so Impoverished; I abhor both Extreams; And yet will justify my Assertion (*viz.*) an Incomparable Improvement to be raised out of both. Therefore in taking an implacable offence at these grosse abuses, they'll not suffer the thoughts of the greatest advance in the sober use of Ploughing thereof, but strongly harbour, because some over-Plough, therefore Plough none at all. What destroyes his Pasture? his Sheep walks his old Land; (a way with such advice) and so because such a Merchant by Improvidence lost all and became a bankrupt, therefore away with that Profession. I'll let my money to use, I am sure of good Security, and we'll have so strict a Law, that I shall be sure to recover my Money, or have his Carcasse; And as for the Curse of God upon extortion, or the Curse of the people he cares not, he shall have a certain quiet undoubted Profit, without Adventures, although the Merchant for the most part brings in double profit to himselfe, and Advantage to the Kingdome, Merits Fame and Honour, when the other shall Ignomy, a Woe, and Curse.

Cave's a-  
gainst En-  
closure.

And on the other hand, saith the other Extream, What inclose, Depopulate and destroy the Poore? No, our Fathers lived well upon their Land and so will we, prevent Enclosure, if we can; we'll will Moyle and Toyle rather all our dayes, we'll keep our Children at home, and save charges, turne them into the Field to keep Sheep, and Kick up their Heeles upon a Balke, Look to our Beasts, Flit our Horses, and honke our Oxen, breed them up our selves to take our Inheritance of Thirty, Forty, or Fifty pounds *per annum*, when very many have much ado therewith to bring both ends together, as most frequent experience shewes, *Not considering the fruit of Idleness, nor their Childrens Ruine for want of Learning, and Activity, losse of Trade, and gallant Breeding. The least whercof is more worth to Youth then all their Lands; witnesse thousands in England, who prefer their Children better with a little good breeding without a penny Portion, then they shall theirs with their Inheritance.* And I feare not before the end of this Discourse, to hold out this principall as destructive as the other.

Thou-  
sands of  
Acres  
yeeld a

Neither am I ashamed to maintaine, as a reproofe to the first Extream, that many ten thousand Acres of Land in England, may yeeld a double profit



profit divers years, by ploughing, and afterwards yeeld as much Rent as ever before, and possibly much more; Nay, I'll say, observe my Directions punctually, and I'll make good the old Rent the very first yeare after Plowing, and begin to enter upon it as soon as the Crop is reaped off, and begin my year with Winter, which is accounted the worst Advantage to the Tenant, and so for Seven, Ten, or Twenty, upon most sorts of Lands in England, of the aforesaid Value: But to stop the mouthes of such Madcaps in each Extream, and make good my Proposition; I will begin with the last first, and try whether I can hold out Enclosure without any Depopulation, or the least prejudice.

double profit under plowing & not the worse for the future.

And say that your Arable or Common Field Lands, or common Heathes, Moores, Forrests, may be highly Advanced; that is out of question. I suppose, denied scarce by any that have had seven yeares Experience of the Disproportion betwixt the Profits of one Lordship in Common, and the next adjoyning to it Inclosed; The one worth three hundred pounds in Common, the other neere a thousand in Pasture.

Enclosure held forth without Depopulations.

Now here lyeth the Trick indeed to make this Improvement, and neither Prejudice Poore, nor Minister; Labourer, nor Farmer; Tenant nor Land-lord; One nor Other, that hath any proper Right or Interest therein, and not Depopulate.

For the holding forth of which, I will take in the third and fourth particular together, And therein I will Demonstrate such a Method, or way of Enclosure (without Depopulation, as all men in particular shall have a Proportionable Advance thereby, And the Common-Wealth a Double or Treble, and Tillage Advanced also, and so the one Extream prevented, and no man hindered, all which shall admit of no other Inconvenience than this, viz.

The prevention in great measure of *Idlenesse* and *Oppression*, 'tis true, it will remove or take away (it may be) a Shepherd, or a Boy or Girl from keeping Cattell, who are more fit for Schoole or Trade, and put the Shepherd to the Spade, or it may be prevent some great Oppressor of the Commons that drives off all poore Commoners off their Commons by his great Flocks and Heardes, whom this Project may drive off his Sheep walks, who lives just upon the Common side, and eats out the Poore, and others that live more remote; And also happily prevent a Rot, which usually is once in foure or five years in most part of the Kingdome, which destroyes all before it, and consumeth the Care and Paines of the Oppressor, and others together, of all the other years profit at once; And possibly may for a little season bring down the Price of Sheep, Cattell, and some other things (by reason of plenty of Sheep so suddenly destroyed) to a low rate; Which were it not for that Rotting Deluge, their Increase would bee beyond

Inclosure prevents Idlenesse and Oppression.

And prevents a Rot.



*Arithmaticall Demonstration* ; But for a long Season afterwards raiseth them to a double Rate immediately again : and Possibly it may bee as an Engine to facilitate most parts of Husbandry, and cause a great deale of work to be done with fewer hands, and yet before the Discourse be ended, I'll find all sorts work enough to all mens Advantages whatsoever, and these are the Inconveniencies of Inclosure and Good Husbandry ; Others I know none, the conveniencies follow also.

## CHAP. XII.

*Sheweth the Land capable of Enclosure, And the Method of it, how it Advanceth the Publick Weale, and all particular Interests.*

Lands capable of enclosure.

**A**ND to this end consider that all Lands capable of Enclosure, are either Common Fields and Arable Lands : Mens proper Right, and Inheritance, Or else Common Pasturing upon Heaths, Moores, Marshes, or Forrest Lands,

For the Enclosure of your common field, Arable Land, I lay down this Direction ; All Interests to be provided for, which I conceive may be reduced to these foure.

1. } First, either Lord of the Soyle, or Landlord.
2. } Secondly, the Minister to the People, or else
3. } Thirdly, the Freeholder and Tenant, or lastly
4. } Fourthly, the Poore Labourer or Cottier.

All which having some Interests more or lesse, shall be seriously considered of.

Cottier provided for.

Therefore I begin with the last, the Poore Cottier, or day Labourer, And provide for him. And looke what Right, or Interest hee hath in Common, I'll first allot out his proportion into Severall, with the better rather then with the worse, a Proportion out of every mans Inheritance, and so much or so many Cattell as he may keep in Common, he shall keep in Pasture or rather more, at as easie a rate as they pay for it in Common, for their lives that now live upon it : And ever after at an under Vallue, and so I cannot possibly conceive that hee hath any cause to be offended.

Labourer provided for.

Minister provided for.

Tithes not Gospel-waies maintenance.

And for the Labourer, you shall see how I shall provide for him too before I have done, besides the allotment of his Proportion, as to the Cottier, or to what Right soever he hath of due or Custome.

Then for the Minister in the next place, because he hath seemed to be the Opposer of it most usually : And truly so he had good reason, as the state of things formerly stood with him : (For though I believe that Tythes are neither consonant to a Gospel Minister, the List of which dispute I intend not



not to enter into, nor yet Conducing to a sweet Compliance with his people.) Yet I also say, that should a Minister either have accepted the the Peoples benevolence of our ordinary English Parishes for his pay : Or have stood to the Courtesie of the Lord, or Free-holder, what he should have had upon the Inclosure : I feare, for the one it would have been too little for a Ministers Maintenance : And for the other, he might goe barefoot, and his Family a begging, for what they would Contribute to his Subsistence.

And therefore would have him to have his Proportion next, and a very substantiall Livelyhood allotted out of the Lands Inclosed, untill the State shall settle a more better or certaine way of Maintenance for him ; if there be either a Competent number of people for him to preach unto ; or Competency of Land to raise it from, in every Parish, or else two or more Parishes that joyne conveniently to be laid together : ( And according to what his Right or Proportion ) ( if he have it in way of Tything ) to be Inclosed, or cast into Pasture for him by himselfe, with as much Conveniency for his dwelling as may be.

And where either Inclosure cannot be agreed upon, or made ( as possible in some parts it may not Consist with all mens Advantage ) I conceive there may be an Agreement made for the allotment of the Ministers Proportion, to be cast into Pasture, so that were his Tenth Enclosed, it would be so gallant a Maintenance for him ; And contentfull to all Patties, that it would remove all troubles, or occasion of Confusion, and Increase Love and Unity, which Tythings have ever occasioned Divisions and Contentions : Which either he may Employ his Wife and Family upon part thereof for necessary Maintenance : and set ( with much more ease ) the rest to free his Family from care and trouble : And so receive his pay every halfe yeare without the least Distraction. I would have him to have such a large Allotment and Proportion, as might inable him to bee Capable of Hospitality, *of which he is to be a Lover*, and farre better able to give then to receive, and to Administer to others, then to be administred unto by way of Charity.

And as for the great depopulation in the Kingdome that hath devoured poore and Tenant, overthrown Corning and good Husbandry, and in some parts Minister and all, and yet persist by keeping their Land from Tillage when it wants it ; when Country, Kingdome the Landlords profit, the Markets, the Labourer, Poore, and Land it selfe and all calls for it.

The Depopulation reproved.



Impropriations to be thought of.

As also for other places where no Maintenance is assigned for the Minister, but the People starve for want of Bread, and where those great Impropriations are that devour all the Profits, and bring all to a short-coat Vicaridge; How these things should be mended, is infinitely beyond my Sphere; and how Ministers should be raised, Maintenance and all Interest preserved, I know not; only I shall pray the wise God to direct our highest Counsels in regulating these distractions, for it is farre beyond my shallow capacity how to advise.

Free-holder.

And for the Free-holder and Tenant, I question not the Free-holders offence, for he having his proportion I know it will be doubled and more.

Tenant.

And for the Tenant let him also share in some Advancement, either let him enjoy it at an easie rate, that looke whatsoever Bargaine hee hath in common by the Yeare, he may have a better upon the Enclosure; or else let him take a Lease for Lives, or Yeares, that as he enjoys the worst, upon the first Inclosure, so he may the best also, having a good Terme or time therein, and then I hope hee will not wrangle neither; for I am sure he need neither Moyle nor Carke as he did before, but manage his businesse with more ease, sweet content, and profit.

Lord of the Soyle, or Land-lord.

And for the Land-lord or Lord, I shall not much bespeake his favour, or Approbation, for he will believe me without Demonstration that there will be a visible and considerable advance fall upon him, only crave his patience, that he'll not be offended, that I seem (and but seeme so to doe) to project to give away his Right as to the Poore, which in Common is their own, whether by Right or Custome, (for I speak of no other in this place but such as have right of Common) and so they may repaire so much by Law; but to encourage them, and to remove offence and scandall I advise it. And when all these particulars concerned in their severall Rights are satisfied, wee shall doe well; and yet the great Block and Prejudice is yet to be removed, which is, The destruction of Corn, and Tillage, which I promised to cleare, which followes.

How Inclosure shall not prejudice the Increase of Come or Land.

First, I indeavour before Enclosure, that either by Ingagements so firme and surely made, by all parties concerned in it, as they may fall under Law to be recovered; Or else by a particular State Law enacted to this end, so to Ingage all men in this new Inclosure to allot, or cast out one third part or thereabout at least of all their Lands constantly for Tillage; or what more at any time they please, One third part for Meadow, And another third part for Pasture, or feeding



ing Land, which third part for Tillage if my conceptions faile not; First with the help of all that Soyle that the Hay of the other third part will raise in maintaining all the Cattell in Winter, that they Pastured in Summer upon the other third part, which I conceive may be as many more; and also,

Four Arguments to prove the advantage by Enclosure.

Secondly, by that advantage there will bee sometimes Ploughing one Pasture, and resting Another, whereby fresh Land and Restey for some yeares will beare more Corne without Mature, then it did before with it, and indeed also after some yeares of resting may stand in need of Ploughing, and possibly may advance the Land by it, as I am sure they will, all our Wood-land courser Lands whatsoever, that are either subject to the Mosse, or Rush, or Ant-hills, whatever it will doe to better.

Thirdly, well knowing (that without question) one Acre of well Manured and Husbanded Land, will yeeld more fruit then two or three otherwise; A principle undeniable.

Fourthly, consider the vast advantage there will be by Husbanding a litle well, I say, it is cleare, some one Acre Manured, Ploughed, and Husbanded in season, and unto that height of Richnesse the Land and Seed sowed doth require, may and doth usually beare as much Corne as two or three ill Husbanded as aforesaid. Then ballance the Businesse, and weigh but the Advantage. One Acre beareth the fruit of three, the two Acres are preserved to graze, the Seed and all other charges of two Acres is preserved to help the Markets; The Husbandry, and Ploughing and Sowing of two Acres is also saved. O consider it, and neither be such Enemies to the State, nor of your selves and Common-wealth so great Abusers, nor of Ingenuity and Good Husbandry so great Traducers; When men have their Lands enclosed and at their own command, I feare not but most men will cover to Husbandry every Acre so well, as it may yeeld forth the utmost fruit it is possibly able to produce, having the rest at their own Command also to Imploy to another Advantage. Which done, halfe the Land in England thus managed, would yeeld more then all that now is under Tillage. This stoore Piece (but by the by) observed, and practised I would make good the Improvement promised.

One Acre brings forth as much as three.

5. Fifthly, also if you consider that all your Common Fields, were never under Tillage neither, A great part Slades and Hade wayes, and a great part Meadow, and much and many Balkes between each Land, and many high-wayes, and some common of Pastures and Leayes



Leaves left for keeping Beasts or Sheep upon, All which will containe one third part as I conceive, if not neere halfe in some places, not under Tillage but wast Lands, Certainly I conclude there may be as much Corne got by Ingenuity upon this lesser quantity of Ground, and much more being Inclosed, then upon it all in Common; And that there cannot be any destruction of Tillage upon all these Wasts and Grazed parts which ever lay to Grasse, and no Tillage was upon them, so that I must cleerely conceive, were one third part upon all Enclosure allotted out, or covenanted to be kept constantly in Tillage, though I advise not to keep the same third part alway in Tillage, but some times one part, and some times another Ground, all making up one just third part, would raise as much Corne, as all did in Common.

### CHAP. XIII.

*Sheweth the Excellency of Tillage, and the great profit thereof, and the great Advance is made out of severall Enclosed Countreys in the Kingdome beyond Champion or Fieldon.*

Tillage's  
greatest  
Profit.

**N**OW Tillage yeeldeth the greatest profit to Land-Lord or Occupier, (study especially the Good Husband) to convert thy Land to the best profit, And that is held and maintained by all men to be by Tillage, else why do men give double Rents to Till and Plough, above what they doe to Graze; and if thou art not yet satisfied, consider but the Wood-Lands, who before Enclosure, were wont to be relieved by the Fieldon, with Corne of all sorts, And now are grown as gallant Corne Countries as be in England, as the Western parts of Warwick-shire, and the Northerne parts of Worcester-shire, Stafford-shire, Shrop-shire, Derby-shire, York-shire, and all the Countries thereabouts.

Also consider the Chilterne Countries, and you shall finde that were it all Inclosed, men would Plough little or no whit lesse then now they doe, because nothing else, nor no way else would yeeld the like Advance.

Consider Hartford-shire, Essex, Kent, Surrey, Sussex, &c. All which not onely raise Corne for themselves, but to supply that great City, that Spends as much as all those Countries, and far more: And yet no parts of England set at greater Rates, or make greater Advantages by Grasing, and yet the greatest part thereof upon Tillage and Corning.



Corning. And what Countrey not almost, though Inclosed, yeelds the greatest profit by the Abundance of Corne produced; But if all that I have said be not enough, I have enough I am sure.

And that I'll draw forth of the other Extreame, which is in men Second  
Extrem. so wedded to their Ease, selfe-profit, and Content, that they never look what may make most profit to the Publike, or good of the Common-wealth, themselves, or Posterity; Hee is seated in a way of Feeding and Grazing, with a constant Stock of Breeding, and let his Land be fit for one, or fit for another use, he matters it not, hee hath received a Prejudice against Ploughing, partly because of the Toyle and Charge thereof, and partly because, as aforesaid, some men have Ploughed their Land so long as they have Impovrished it much; And some men so long as it is possible, it may be many yeares before it Soard Compleatly, and therefore let it be Dry, or Moyst, Sound or Rotten, Runn, or Mossey, Fenny, or run over with a Fiagg Grasse, or all Hills, Mossure or wild Time let it keep more or lesse, hee'll not alter, tell him Sir, it will yeeld abundance of gallant Corne to supply the whole Countrey, and raise great Summes of Money to your Purse, and afterward ( if you Plough Moderately ) it may keepe as many Cattell, nay more, yet nothing takes with him, hee will have no Enclosure Ploughed by no means, yet seriously weigh these ensuing particulars; And then use thy own will and pleasure.

For to make good my promise herein; I must first premise, that my Designe is mainly upon a second sort of courser Lands, betwixt A second  
sort of  
Courser  
Lands the  
only Land  
for plough  
ing. twenty shillings an Acre, and ten shillings or a Noble, out of all which will come a great Advancement to no prejudice at all, and is one of the six Pieces of greatest Advancement promised. Although the best sort of Land of all, will yeeld the greatest profit, yet not without some seeming little Prejudice to it, And also this will best continue and hold his beauty, and strength, and Improve upon Grazing rather then lose, which the best sort will not. And of this best sort of Lands with the Improvement to be made thereon very Considerable, I shall also speak under the sixt and last Piece of all: And shall now set forth how the Ploughing of all such Lands, according to the Designe projected, which shall be a supply or filling up, and running over of the measure of plenty, in case Inclosure should decrease it ( which I am confident upon the consideration of the aforesaid Reasons thou canst not Imagine ) and so remove that Extreame also. In which Projection I shall tell thee, that if thou wilt foilow the Rules prescribed, thou shalt double the prizes of thy Lands for  
the



the present time of Ploughing, and after lay it down better for Grazing then thou tookest it up to plough, Only consider that of this second sort, there be three natures, the

First, Sad and moyst strong Clay and cold.

Second. Mixed with divers Earths.

Third, Warne, Sandy, or Gravelly.

The middle sort of Clay is strong Land it advanceth it selfe by Tillage. The warm lighter Land advanceth most in Corne to the Common-wealth.

How to banck Ant-hills most speedily.

The best way to destroy Rushes or coldness in any Pasture.

The first nature of Land advanceth it selfe most by Tillage, yet raiseth Corne in abundance also, but the two latter natured Lands, advanceth not so much in it selfe, as in that wonderfull increase of Corne it yeeldeth to the Kingdome, I verily believe that Lands of these latter natures are as fruitfull and kind for Corne ( especially if they be resty ) and for foure yeares may produce as much increase to the Strike or Market, as that Land that is as Rich againe, or twice as Rich, for as the Corning Land may as well be too good as too bad, and I had farre rather make choyce of a middle sound warme Land, then of the richest, and fattest that is, for this will yeild it selfe, and hurt more to the Corne then the other, and yet this also may be bettered with wisdom used in the Ploughing, for Grazing also.

First therefore consider the nature of this first sort of Land, and the way of Husbanding it to inable it to produce the promised Improvement; And so I begin with that which is of a pure Clay, or of a little mixed nature either with Sand or Gravel, and yet is of a cold temper, and so is neither so wholesome for Cattels lodging, nor so fruitfull for their Pasturing; Which sort of Land is many times overrun with Ant-hills (which are best destroyed this way, being opened, the Soard taken up, and the Coare taken out, and scattered before the Plough, will make all the Land Plough the better, and also lye better, and the Mould will help a little all the parts of the Land they are spread upon ) and Rushes and Mosse in abundance, may many times so over-run with them, that they are so thick and noysome, that they not only hinder the Earths naturall fruitfulness, but the Rushes are so thick and high in many Pastures, that the Sheep many times make them for their Refuge, to preserve themselves from the heat, that oft-times they are sheltered so long by them, untill they be lost by the Maus, Maggots or Vermine; A great prejudice to the Grazier, or Breeder; All which is certainly occasioned by the Moystness, and Coldness of the Lands, which will no way more certainly and Advantageously be removed but by Ploughing these Lands, which course although by many men it be thought an Impoverishing of the Land, yet I absolutely deny the same, and Affirme both

from



from mine owne Experience, and the Practice of those that have made tryall thereof, that it shall most wonderfully advance the same for present and future; Over-Ploughing indeed weakens Land, Ex-  
 streams on either hand are dangerous, and destructive; Food and Bread sustaineth nature, but Gluttony destroyes it; Wine nourish-  
 eth the heart, but Drunkenness drowns it; And as over Tilling and forcing out the heart is worst, so I say, not then to Plough when the  
 Land is run to Mosse, and to these corruptions, is no lesse bad: And being done with wisdom and moderation, is farre more advantage  
 then not to Plough; And this my selfe have offered familiarly for Lands of this nature, worth, and quality, to give a Ploughing or  
 double Rent for the same, according to his naturall worth for three or foure yeares, but not above, as hath been conceived the Land hath  
 been able to beare; And then after Ploughing the very first yeare to give the old Rent, and take a Lease for Ten, or Fittene, or Twenty  
 yeares at the same rate, whereby let Ingenuity Judge, what Prejudice this may be possibly; For the time of ploughing the Lands may  
 yeeld double Rent, some more, some old Rent, and halfe Rent, and some one third part more then old Rent; All which I conceive is a  
 great Advantage, with another secret advantage interwoven with it, as an Addition to the State, which is the raising of a great quantity  
 of Corne to the use of the Common-wealth, The setting of many Poore on worke, The raising Straw, which wintering Cattell with,  
 may raise such abundance of good Manure, Dung, or Soyle, as may enrich a great part of the same, or some other Lands, and were there  
 no other advantage but helping the Common-wealth herein, I hope no honest publique spirit would oppose it, many Lands lying under  
 this Capacity lye in the South part of *Warwick-shire* and *Worcester-shire*, *Leicester*, *Nottingham*, *Rutland*, some part of *Lincoln-shire*,  
*Northampton*, *Buckingham*, and some part of *Bedford-shire*, and in most part of the Vales in *England*, and very many parcels in most  
 Counties of this Kingdome; And this I say again, doe but observe my Method. And this I say again, doe but observe my Method, and  
 strictly trace my Instructions, and pursue them all along. I dare make it good upon most Lands of this Kingdome except it bee upon that  
 which is a harsh binding churlish nature, which will also admit of a good Improvement though not so good, especially when it shall bee  
 over-grown with the aforefaid Annoyances.

Moderate  
Tillage  
must needs  
advance  
Land.

Advance  
for plow-  
ing, & the  
old Rent  
the first  
year after.

An offer  
made of  
making  
good a  
Lease af-  
ter plough-  
ing of old  
Rent, and  
a great  
advance  
in plough-  
ing.



## CHAP. XIV.

*Sheweth the manner of Ploughing, and working Lands to so great Advance, with two Incredible Presidents of Advance.*

Stratford  
upon A-  
von Presi-  
dent.

**T**HERE is a Parcell of Land in *Warwick-shire*, neere *Stratford* upon *Avon*, that is Oaded every fourteene years, and Corned divers years after that ; and so there may be many more Parcells also besides this I speake of, and so I beleive there is, and after that fourteen years rest and Grazing, Oaded againe and Corned also : So there are some in *Northampton shire* will doe the like ; And so runs round, Grazing-fits for Poughing and Corning, and Corning-fits for Grazing ; A most gallant opportunity : Doubles the Grazing-rent, while under Corning ; and more under Oading ; And Grazeth againe immediately at a very considerable Rent, and might doe the first yeare at old Rent, and so forward, Would they Plough but three or foure years according to my direction, but they Plough five, six, or seaven ; Such a Method would please me gallantly, advance the Common-wealth Exceedingly ; And prejudice whom, I would faine know : Abundance of pcor set on worke ; Abundance of Corn rayfed ; Abundance of Straw which spent and fed upon the Land shall make that up againe whatever the Ploughing fetched out : Doubles Rent and more, foure or five years in one and twentie : And so every age neere fetcheth in the Purchase ; And the Land where it was, and would be as rich as it was, if it be not, (my directions observed) a great Estate rayfed out of nothing : Why not thus in a thousand other parts of this Kingdome. as good Land and better, and as futable to this advance ?

O Sloth I stand by, and let Ingenuitie try a Trick or two more, and wonder at thy owne Ignominy and Weaknesse.

The man-  
ner how to  
Plow such  
Lands.

Secondly. consider thy Land how it lyeth, whether round with Ridg and Furrow, then use your owne discretion for the manner of Ploughing ; for the first yeare however, Plough it as well as you can possibly, both cleare from Balkes and Slips, and of such a stich or depth as the Land will beare ; however goe not under the true and naturall soyle of the Earth, neither Plough it too thick, for that will be a great prejudice to your second Ploughing, because your Furrowes will rise most hard and stubborne, and so moile both Teames, Work-men and Servants, as is incredible. But if it bee Lands and great Balkes together, then for the Lands Plough them as you please, that is, whether Ridge-Are, or Cast them, but for your Balkes



Balkes before you, Ridge them all. And although it will aske pains, cost and hot water, yet faile not herein: And though the Rushes be thick and strong, yet be not discouraged; Mow the Rushes in the beginning of Winter, as low as you can possibly, and then you may with paines, and patience, a good Teame, and good Ploughs with sharpe Irons, All made true, sharpe and smooth, doe it with incredible dexteritie; faile none of these directions, you cannot conceive the wondrefull advantage in this exactnesse; And were it so, the Land were such as there must be required as much cost and paines with the Spade, as with the Plough? I would bestow it, and never question how it shall answer the same: For, say the cost be extraordinary, and say one Acre cost thee as much over-comming it, and laying it round, sound and faire, as usually thou or others bestow on two or three Acres; Yet what is that to the fruit or profit it may produce? I dare say, one Acre of Corne thus thoroughly husbanded, may be worth two Acres, nay three, flubbered over, and done many times, and as most men commonly doe therein; And what is it to lay out five shillings or a noble extraordinary in every Acre, and reape it in the Pounds, as I dare say you shall in the two first Crops, which are the only Crops requiring such exactnesse. I would tell thee an Experiment if thou durst believe it, 'tis this; I once held a Piece of Land worth nine shillings an Acre, and no more to Graze; I gave fifteen shillings to Plough, it was great Lands and as great Balkes betwixt them, full of your soft Rushes, as high some of them as any ordinary Beast, and lay very wet; The Land conceived by me not able to beare Barley, it was so Weake and Barren, so cold and queasy; And the neighbours very able husband-men round about so discouraged me (out of their love unto me) as that they desired me to forbear Tillage of it, because it would never answer ordinary cost bestowed on it, nor be worth an old Grazing-rent to Plough, & that they cleared to me by very clear Evidence, as they conceived, saying, Such Land next unto it which was farre better Land, (and indeed so it was very neare as rich againe) husbanded by very able husbands, the best in that Country; And that Land good Barley-Land yet never answered the pains and cost bestowed, yet I resolving to make a full tryall thereof. I set upon it according to the prescription aforesaid, Each Acre Ploughing and Harrowing, Spading and Dressing (for indeed I made Harrowes on purpose also) of divers Sizes, it cost me about fiftene or sixtene shillings an Acre the two first Crops, the very Dressing of it; And for these Crops,

Mow the Rushes.

Especially directions for Plowing.

Experiment of Plowing the second sort of Land, and the fruits of it.

A President of the fruit that came of poore Lands worth but nine shillings an Acre.



being but of Oates, I could have had five pound an Acre, (being offered it by an Oatemeale-man of himselfe, though never asked) growing upon the ground; Nay, six pound an Acre, if I would have sold it, which is a vast rate for Oates in the middle of the Kingdome; And indeed I found the ground so poore, that it would not beare Barley, for I tryed some Acres of the best Land in it, but it was not worth an Acre of my Oates, and after Ploughing I gave the old naturall Rent as it was ever set at or really worth, and that for many years and the Land is better, lyeth sounder, warmer, and both yeelds more Milke, Summers as many Cattell, and Winters far more, and feeds better then it did before.

## CHAP. XV.

*Sheweth the best, and most dangerous way of Ploughing, and Husbanding Lands, so as most to Advantage it, in laying downe Land to Graze, to make good the Improvement promised, and not to over-plough, as you tender the losse of your Land.*

To lay open Furrowes.

**T**O this end be sure to lay your Furrowes open, and cleane scoured up, and capable to receive and carry away all your standing water, or soaking moysture, and be sure so to Plough your Lands as you may cast your Lands into severall Furlongs, that you may have one Furrow or Drayne run into another, and that next into another, and so into the Master Trench, which if it cannot be made deep enough with the Plough, let it be done with the Spade substantially; And so from one to another to carry away the Water, that it may neither annoy your Corne throughout your Field, nor your Land when you come to lay it down, and then when you have Ploughed your Lands, wherein the more truth and exactnesse you observe therein, the more fruit expect.

What Harneſſe and Harrowing is most advantageous.

And when you come to sowing your Lands, you must get very strong weight Harrowes (if you would doe it indeed) and not flubber it over (as most doe) long tined and sharpe, and either they must be so weighty of themselves, that they may worke a gallant strong Teame to draw them, or else so loaden with weight, that you teare up rough uneven places, and raise good store of Mould, which is a marvellous great Advantage to the Corn; as for the ordinary way of Hilding Land as most do, is Reproveable, and then with two or three sorts of Harrowes, each Harrow having his Teeth, or Tines thicker then



then other, which will so curiously and certainly cover your Corne that you will have little or none lye uncovered, but well moulded, which will give such strength, and heart unto it, as by Gods blessing you may expect a Crop aniverable to your cost bestowed, and farre greater.

The next direction is, that as I cry up Ploughing, as a soveraigne means of a great Advancement, so I also as much decry Over-Ploughing, or the Ploughing of Lands as most doe, some Plough as long as it will beare any Corn, and others as long as it will bear good Corne; And others they Plough on any fashion, lay their Lands, as though they were over-running them, both to Corne and Graze, and when they lay it down, cast them low, and lay them flat, uneven, full of Balkes and Holes excellent to hold water, they matter not after what manner they leave it, nor after what Grain, I therefore prescribe onely three or foure yeares to Plough unto this sort of Land, not lesse, because the Rush, Filth, and Earth will not be rotted nor well compounded; nor the nature of the Land changed with fewer Tiths, nor the Lands well brought to a good height, roundnesse, and drinenesse in lesser time; for if it be cold Land, all that can possibly bee done will not lay it high and dry enough, nor the Mould wrought to her perfect tendernesse, and true Mixture, whereby it may yeeld more fruitfulnessse; but if the Land be very rich of nature, and not well wrought, nor the Rush perfectly destroyed, nor the Lands brought up to a convenient height and roundnesse, then one yeare more may doe well, which year shall yeeld the best Crop out of all question, but will draw a little more from the strength of the Land, then any of the other years did; and if the Land be in strength, it may very little prejudice it, and therefore this I leave to every mans pleasure, upon this Consideration, and could wish that all men would so Plough, as mainly intending the Advance and Betterment of their Land, especially Pasture-Land, and no otherwise; For you were as good lose some of your Inheritance (as you doe) in my opinion, Or as good lose the Land which is but the Carcasse, as the strength and vertue, which is the Heart and Life of it, for therein is the Common Advantage, when the Earth yeelds most increase, or fruit, and a little parcell yeelds abundance.

Fifthly and lastly, I advise to lay down all Lands of this nature upon Wheat, Messin, or Rye Stubble, which will exceedingly thicken and Improve the Soarding, and if my Principles faile not, will raise as good a Soard in one yeare, as any Summer Corne whatsoever will in two.

Our Ploughing cryed downe.

Our Ploughing reproved.

Reasons why but three or four years are prescribed for Ploughing old Pasture Land.

Last Crop may yeeld most corn, but worst for the Land.

To lay downe Land upon the

Wheat. or Rye Stubble is best, and the reasons

First, of it.



First, because it hath one halfe yeare more to Soard in, then after the Lenton Tyth, and so is somewhat Soarded before Oates, Barley or Pease are sowne.

The way  
of Sowing  
Land to  
be left af-  
ter to  
Grasse.

Dung laid  
upon the  
new fresh  
Turfe,  
workes  
wonders.

When one  
Load of  
Manure  
will goe as  
far as two  
or three.

2 Secondly, because winter Corne groweth thin, long, and a stronger Straw, and gives more liberty to the Grasse to grow, and spread the Thicker, and the Soard will also be very Rich, and Fruit-ful; I likewise advise to sow this Land, as early as possibly you can, even as soon as your other Crop is in, the sooner the better, unlesse the Condition of the Country very much opposeth it, how ever the Earlier it is sowed, the better is the Crop like to prove, because these Graines of Wheat or Rye, &c. require the Land, to be in better Tillage then this can be: Therefore help it what you can possibly by seasonable and early sowing, that it may have as much Summer as may be, and by all means Harrow in your Corne after it is Ploughed; For this is more certain to produce a good Crop. And secondly, leave the Ground even, and smooth to Graze, yet forget not that your Lands be left High, and Round, the Colder in nature, the Higher and Rounder as aforesaid, and each Furrow be Scoured up, as cleanly as you can possibly; These simple particulars really Observed, and Practised, will bring the Land to that condition that I shall make good what I formerly promised, and to this particular I shall say no more for present, onely this may be applyed to any of this second sort of Land, be it of what Mixture, or Composition soever that is Banky, Mossie, and Rushy, and will have a proportionable effect promised; But if possibly you could run over a good part of this Land with Dung, before you sow your last Crop, or so much as you could, it would produce a double Advantage of the cost bestowed, towards the Soarding of it. And if after you have Reaped your last Crop, you could then run it over again, with any quantity of Muck, or Compost, it might so nourish your Land, and that for many years after, possibly it might bee neerer as good again upon the old Soarding, as it was before; for you would wonder how much good one Load of Manure doth upon the Land so Tender, wrought, and Mixed, beyond what two or three Load will doe an old Soard, or old Pasture so Rough and Filthy, nothing will make you believe this, but your own experience. Let mee prevaile herein (good Reader) to make a tryall, it will be to thy benefit, bee not an Enemy to Tillage, nor raising Corn to Poore, and Common-wealth, and if thou expect better Satisfaction, take it from divine Evidence and from the Conclusion of him that spake by Inspiration, as well as from naturall Experience.



*He that tilleth his Land, shall be satisfied with Bread, and shall have plenty.* Prov. 12. 11.

*Much Food is in Tillage for the Poore.* And if this satisfie not, carry this one Text ( if thou canst remember no more ) along with thee into thy Pastures, when thou art in thy greatest Glory. Prov. 28. 19. Prov. 13. 23.

*Hee that withdraweth Corne, the People shall Curse him, and a blessing upon his Head that selleth it.* But he must get it first, And so we ought upon that Land as will most freely yeeld it, which I conceive is a main end wherefore Thou and thy Land were first created. Be not envious to thine own good, nor wiltull to thine own profit; I am much abashed to use so many words, to presse so plain Simple Principles, thought to be well known to all ( and possibly they may be, better then to my Selfe ) but truly the little Practise of them, and the Scorn men carry in their Breasts to learn, and that Thirstinesse in me after the Common good, occasions all this Rudenesse, to see thousands of Opportunities so neglected, makes me amazed.

## CHAP. XVI.

*Briefly sheweth the way of Improvement of Forrests, Heaths, and Commons, And by more Arguments makes good the unprejudiced Advance by Enclosure and Quotes Tussers, Rimes for him that hath not Reason.*

**A**S for your Heathes, Moores, and Forrest Lands, I shall onely speak thus much, That vast and Incredulous are their Capacities of Improvement in generall, referring the particular wayes of Improvement of every sort, and differing natured Land, as they fall in the fourth or sixth Piece of Improvement, to avoyd prolixity, because the very same Ingredients, Compositions, and Directions, are suitably and naturally Applyable to these Lands, as to those to which they are prescribed.

Therefore I onely say that all Interests in these Commons, or Rights of Common Pasture, upon any of these Lands, may without Prejudice to any particular Interest, be much Improvement made to the Kingdomes; I speak not to inright the Usurpers of Right wrongfully maintained, or Oppressors of any other mens Rights, I desire that right might onely run in its proper Channell. Onely right in Commons, not Usurpers I speak to.

First in generall by the same Method of Enclosing, held forth in this third generall Piece of Improvement, touching Common Field-Lands,



At the  
first En-  
closing of  
any Com-  
mon, how  
to cast  
out Land  
to the  
greatest  
Advance.

Lands. If thereto, before Enclosure you doe but adde the Method or Drought of first casting out your Lands, and plotting them into such Plots and Formes, so that where there is, or may bee a Capacity of bringing thy Land under any good Stream, or Land-flood, be sure to cast it for Meadowing. having drawn one Master Levell floating course throughout thy whole Plot of Enclosure, which may also serve as thy first division; and to carry thy water along also to flow thy Meadowing, thou shalt make all under it fit, that thou mayst not lose that Opportunity now at first, (which after divisions made cannot be had) of so great an Improvement, at so small a Rate, now at thy first contrivance thou mayst cast it under, and then cast out all thy Lands, according to the most suitableness of them all to such Improvements as they lye under, and then to the Conveniences of each mans Right and Interest, and the greatest Advancement upon these Inclosures will be two.

Two ad-  
vantages  
of this En-  
closure.

The first giving all Ingenuous men a Capacity to Plough, and Till, what they please thereof, which will raise a double, or treble Advantage as to Grasing, and a Tenfold greater Advance as to Common of Pasture (which to some is worth nothing at all, because of their remoteness, to others but a little, because of some great Oppressor, neerly and neerly seated upon the Commons, that drives others from it) and to note what it may be, as by right, when he may use all his Parts, Purse, and Experiences of Husbandry at his own pleasure by improving it; And it is, and never was otherwise seen, that men would ever joyn together in one body to use their utmost to improve any of these Lands to the best Advantage, for though Common of Pasture is mens own Inheritance and every man not knowing his Lot, or Proportion, how rarely will they ever joyn or agree therein, although they are all perswaded of a probable great Advancement, yet one sayes, I shall not have so great an Advantage by it as my Neighbour; and another he beleeves it will be good for present, but it will not last; and another sayes, he hath no reason to beare so great a proportion of Charge, though he have as much Land yet he's not capable of so great an Improvement; and a thousand Excuses and Cavels there must be, which though a Wise man may easily answer, yet never convince their Judgements, for it hath ever been so since their dayes and their Fore-fathers were as wise as they, and they cannot be satisfied, let it alone and we'll take the present profit it yeelds, and there is an end of their Improvement.

Cavels a-  
gainst im-  
prove-  
ment in  
Common.

And here I'll give you a President, which though it might, as to  
the



the nature of it, have come in more seasonably in the discourse about common Field Land, yet here it is very naturall also, both as to the end I bring it for, and for the discovering a Capacity of vast Improvement, both upon it selfe, and upon all other Lands of that nature.

There are many hundreds; if not thousands of Acres of Lands neere *Dunstable*, in a Valley uner *Puddle*, or *Chalk-Hills*, just under the bottome of the Hills (an eminent place known well to most) which I believe runs both wayes farre, but on both sides the Rode-way to *Chester* and *Coventry* the Land lyeth, with a little Brooke, or stream running through it; All which Lands, (if you observe them) above halfe the yeare lyeth full of water, if not under water, and I believe is worth about five shillings an Acre, I am sure abundance of it, is not worth three shillings, and some not worth two shillings an Acre, which if my Judgement faile not, may easily be drayned, and laid so found and wholesome, which were but that done according to the second Piece of Improvement, and the directions given in the seventh chapter, treating of Drayning, I dare uphold one Acre would be as good as divers now are in many parts of it, but then should you also by the benefit of that Brooke, and all these gallant rich Land-floods, that issue from the Hills on one hand, and from the Vale especially on the other hand, take the advantage and benefit of them also, and according to the first Piece Improve it by Floating, which may very feazibly be done according to the direction of the fourth, fifth, and sixth Chapter, whereby it may be Improved to its utmost. I verily believe it would not only make good the utmost extent of my Improvement promised, but will afford Hay sufficient to supply all those Barren parts, and that as good again, if not thrice so good as now it is. I instance this place the rather, because it is so obvious to every one, and this offer of Improvement was once tendred to them, who could not agree therein, but made many of the said Objections aforesaid, although it was offered them to be done at anothers cost and charge, and they to have run no Hazzard, but to have come into so great an Improvement paying the cost and charges, if the designe had taken after they had seen it wrought unto their hands: but there are a thousand, and ten thousand Acres up and down the Kingdome, some yeelds more, and others lesse hopes of vast Advancement, and great enough, if men would put them upon triall, and great and vast quantities of Land in many Forrests of this Kingdome, and other Heaths, Wafts, Moores, and other Commons, subject to the greatest Improvements at little charge.

A Pre-  
dent of  
great  
store of  
lost Land  
under  
puddle, ca-  
pable of  
Improve-  
ment.

An offer  
made once  
to have  
made  
good the  
same.



2 Advantage of this Enclosure.

Along the River Thames both waies much barren Land.

2 Which will be by letting in another as great Advantage, which is to bring all other Lands into a capacity to improve the same, by all other sorts and wayes as the Land is naturall unto, to improve it by; as by Lime, and Marle, Muck, and Soyle, Land, and Earth, Chalke, and Mud, &c. With many other wayes, all which men will infinitely more pursue when they know their own, then while it lyes at random, which will more naturally fall into the next Piece, and there shall be particularly handled, whereby great store of Corn of all sorts (where now not one Grain is Tilled) may be gained, which raiseth Straw, Stover, and Fodder, abundantly for raising Soyle, Dung, or Manure. An old, and the onely infallible, and undeniable means to advance any Land whatsoever, I shall digresse a little, of which all men talk, but few practice to purpose, else what means all those barren Lands (though not Common Lands) lying within some two Miles, other three, foure, five, or six of the great City (where all men are said to be the most gallant Husbands of the Kingdome) to lye unimproved, all Heath, or Ling, or Broome, not worth three, foure, or five shillings an Acre; surely were there either Soyle to be had at London for Money, as indeed there is enough to be had without; nay, in many parts men may have Money to carry it away, else were there a River to Barge it up and down upon, men would improve it to great worth, Many hundred, if not thousand Acres in *Essex*, *Kent*, and *Surrey* are neglected; certainly Land is worth Money, and Money enough too (if I be not mistaken) about London; And then by these means when the same shall be laid down to Graze, observing but the particular Directions aforesaid, it shall feed and fat, where before it kept but store Cattell alive; much more might herein be said, but I'll say no more, for if the Presiding these Experiences will not satisfie and abash the Oppressor, I am sure I shall shame my selfe by my Prolivity, and therefore I'll stop the Black-More no more, untill he manifest his offence at what I have said, by way of return in the same kind, but if he delight more in Rime then Reason or Experience, Take Mr. *Tusser* speaking in his Husbandry of the great Advantages betwixt Enclosure, and the Champion Countries, and I will give it thee in his own Phrase, which I conceive will please thee better.

By



By Mr. T U S S E R 106 Pag. Chap. 52.

A Comparison between Champion-Countrey  
and Inclosure.

**T**He Countrey Inclosed I praise,  
The other delighteth not me,  
For nothing the Wealth it doth raise  
To such as Inferiour be.  
How both of them partly I know,  
Here somewhat I mind to show,  
Their Swineheard that keepeth the Hog,  
Their Neatheard with Curre and with Horne,  
Their Sheapheard with Whistle and Dog,  
Be fence to the Meadows and Corne.  
Their Horse being ty'd on a Balke,  
Is ready with Thiefe for to walke  
Where all things incammone doe rest.  
Corn-field with the Pasture and Mead,  
Though common yee doe as the rest,  
Yet what doth it stand you in stead?  
Their Commons as Commoners use,  
For otherwise shalt thou not chuse.  
What Laire much better then there?  
Or cheaper (thereon to doe well?)  
What Drudgery more any where?  
Lesse good therefore, where can yee tell?  
What gotten by Summer is seen,  
In Winter is eaten up clean,  
Example by Liecestershire,  
What Soyle can be better then that,  
For any thing heart can desire?  
And yet they want yee see what,  
Mast, Covert, Close, Pasture, and Wood,  
And other things needfull is good,  
All those doe Inclosure bring,  
Experience teacheth no lesse,  
I speake not to boast of the thing,  
But onely a truth to expresse.  
Example (if doubt you doe make)  
Of Suffolk and Essex goe take,



Englands Improvement : or,

More plenty of Mutton and Beefe,  
 Corne, Butter, and Cheefe of the best,  
 More Wealth any where to be brieft,

More people more handsome and prest  
 Where find yee? Goo search any Coast,  
 Then there where Inclosure is most,  
 More worke for the labouring-man,  
 As well in the Town as the Field,  
 Or thereof devise (if you can)

More profit what Countrey doth yeeld.  
 More seldome where see yee the Poore  
 Goe begging from doore to doore,  
 In Norfolke behold the dispaire

Of Tillage, too much to be borne  
 By Drovers, from Faire unto Faire,  
 And other destroying the Corne,  
 By Custome, and Covetous Pates,  
 By Gaps, and opening of Gates.

What speake I of Commoners by,  
 With drawing all after a Line,  
 So noying the Corne as it lye,  
 With Cattell, with Coneyes and Swine?

When thou hast bestowed the cost,  
 Looke halfe of the same to be lost,  
 The flocks of the Lords of the Soyle  
 Doe yearly the Winter Corne wrong,  
 The same in a manner they spoyle,  
 With feeding so low and so long.

And therefore that Champion Field  
 Doth seldome good Winter Corne yeeld.  
 By Cambridge a Town I doe know,  
 Where many good husbands doe dwell,  
 Whose losses by Lossells it doth shew,  
 More here then is needfull to tell.

Determine at Court which they shall,  
 Performed is nothing at all,  
 The Champion robbeth at night,  
 And proleth and filcherh by day,  
 Himselfe and his Beasts out of sight,  
 Both spoyleth and maketh away,  
 Not onely thy Grasse, but thy Corne,  
 Both after, and y'er it be shorne,



Pease bolt with thy Pease he will have,  
 His houshold to feed and his Hog,  
 Now stealeth he, now will he crave,  
 And now will he cozen and sag.  
 In Bridewell a number he steipe,  
 Lesse wanty then Thiefe to be whipt,  
 Lord if you doe take them what steeres doe  
 How bold they together like Barres?  
 For Commons these Commoners cry,  
 Inclosing they may not abide,  
 Yet some be not able to buy  
 A Cow with a Calf by her side.  
 Nor lay not to live by their works,  
 But Thieveryly loyter and lurke,  
 The Lord of the Towne is to Blame  
 For these, and for many faults more,  
 For that he doth know of the same,  
 Yet lets them unpunished goe.  
 Such Lords ill Example doe give,  
 Where Varlets and Drabs so may live,  
 What foot-paths are made, and how bread?  
 Annoyance too much to be borne,  
 With Horse and with Cattel, what road  
 Is made through every mans Corne?  
 Where Champions ruleth the roost,  
 There daily disorder is most,  
 There Sheepe when they drinke to wast,  
 How carelesse their Sheepe they doe guide,  
 The Farmer they leave in the lase,  
 With losses on every side.  
 Though any mans Corne they doe bite,  
 They will not allow him a wite,  
 What Hunting and Hawking is there,  
 Corne looking for Scickle at hand,  
 Acts lawlesse so doe without feare,  
 How ready together they hand?  
 More harme to another will doe  
 Then they would be done so unto,  
 More profit is quieter found,  
 Where Pasture in severall be,

109.p.160



Englands Improvement; or,  
 Of one filly Acre of ground,  
 The Champion maketh of three.  
 Again, what a joy is it known,  
 When men may be bold with their own?  
 The tone is commended for graine,  
 Yet bread made of Beanes they doe eat,  
 The tother for one waste hath Twaine,  
 Of Meslin of Rye, and of Wheat.  
 The Champion liveth full bare,  
 When Wood-land full merry doe fare.  
 Ton giveth his Corne in a Dearth,  
 To Horse, Sheep, and Hogs e'ry day,  
 The tother giveth Cattell warme beareth  
 And feeds them with Straw and with Hay.  
 Corne spent of the ton sa in vaine,  
 The tother doth sell to his gaine;  
 Ton bare feet and ragged doth goe,  
 And ready in Winter to starve.  
 When tother yee see doe not so,  
 But have what is needfull to serve.  
 T'one paine in a Cottage doth take,  
 When th' other trim Bowers doth make,  
 T'one layeth for Turfe and for Sedge,  
 And hath his wonderfull suite,  
 When th' other in every Hedge  
 Hath plentie of Puell and Fruit.  
 Evill twenty times worser then these,  
 Inclosure quickly would ease.  
 In Wood-land the Poore men that have  
 Scarce fully two Acres of Land,  
 More merrily live and doe save.  
 Then th' other with twenty in hand,  
 Yet pay they as much for the two,  
 As t' other for twenty must doe.  
 The labourer coming from thence,  
 In Wood-land to worke any where,  
 I warrant you, goeth not hence  
 To worke any more againe there.  
 If this same be true (as it is)  
 Why gather they nothing of this?



*The Poore at Inclosure doe grudge,  
Because of abuses that fall,  
Lest some man should have too much,  
And some again nothing at all;  
If order might therein be found,  
What were to the severall ground.*

Study therefore the management of all thy estate to the best publike Advantage, Husbandrie all thy Lands to the best and greatest benefit of the Common-wealth, for in this way of Improvement thou canst not possibly, intending the publike good, but necessarily the greatest good must follow, to Poore, thy selfe, and family.

Order therefore thy common Arable Lands, as they also may raise and produce most plenty to all Concernments, and all Waits, Forests, and Heaths, that they may produce their great advantage, which being so old and restie, will yeeld forth Corn in great abundance, and after, Pasture to double profit. Be not peevish, nor let not passion, nor old customed corrupted will, prevaile against these Advantages, for he that Improves not all his Land to this end, the raising plenty, and relieving the miserable, answereth not the ends, wherefore thy selfe and all thy Lands were given, as before I hinted. I have no more to say to thee, but to intreat thee to remember that passage of the Wise Man (*viz.*) *The thoughts of the diligent bring abundance*; And if thou wilt be yet unsatisfied, be so still. Prov. 21. 5

*The Fourth Piece is a discovery of such Simples, and Ingredients, to bee compounded with the Earth, With the Nature and use of them, In Application whereof makes good the Improvement promised, and Meliorateth the Earth to all Intents and Purposes.*

## CHAP. XVII.

*Sheweth how in Tillage of thy Land, thou mayst Improve it best, with an Addition of any Soyl, or Manure by farre, then upon the Turfe in Grazing, And in Particular Treateth of Liming.*

**A**Ll Up-Lands whatsoever, especially all sound and wholesome Lands, will admit of severall waies of Improvement, as, Improve-  
ment of  
up-Land  
severall  
waies.  
In generall all course Barren Heat is, Lingy, Broomy Lands, be it of the lowest and meanest value, is suitable for Improvement by liming



President  
of plow-  
ing wood-  
land  
Land.  
A Hus-  
bandmans  
old prin-  
ciple.  
Wood-  
land  
Lands  
Tilled e-  
very ten  
yeares.  
Means or  
Materials  
to enrich  
Land.

and by all the Subsequent Compositions, all old Resty Land that hath not been Tilled of late, although it be coule of its own nature, and yeeld little Fruit, yet by Ploughing according to former directions, all Advantages observed for three or foure Crops, which I feare not but the heart and strength thereof will beare it out, without Prejudice ; I have known Six or Seven Crops taken of Land not worth above five shillings or six shillings an Acre, and it very little the worse, as generally all the Wood-Lands are apt to run to Mosse, and Earne, Gosse, and Broome, and to be so extreemly over-run therewith, that it bears nothing else, and if they be not tilled according to that Ancient Principle all Husband-men retaine, every ten or fifteen yeares ; they will run into these Extreames so far, as that they will be of little use, so all other Lands of a better nature subject to these Extreames, no better way can possibly be, then *Moderate Tillage*, according to the former rules Prescribed.

And in thy Tillage are these speciall Opportunities to Improve it, either by Liming, Marling, Sanding, Earthing, Mudding, Snayle-codding, Mucking Chalking, Pidgeons-Dung, Hens-Dung, Hoggs-Dung or by any other means, as some by Raggs, some by course Wooll, by Pitch Markes, and Tarry Stuff, any oyley Stuff, and many things more, yea indeed any thing almost that hath any Liquidnesse, Foulnesse, or good Moysture in it, is very naturall Inrichment to almost any sort of Land, all which as to all sorts of Land, they are of an exceeding Meliorating nature, and of most of these more particularly.

Liming of  
Land.

And first for Liming, it is of most Excellent use, yea so great that whole Countries, and many Counties that were naturally as Barren, as any in this Kingdome, and had formerly (within lesse then an Age) supply with Corn out of the Feildon Corne Country, and now is and long hath been ready to supply them, and doth and hath brought their Land into such a Posture, for bearing all sorts of Corne, that upon Land not worth above one or two shillings an Acre, they will raise (well Husbanded with Lime) as good Wheat, Barley, and White and Gray Pease, as *England* yeelds, yea they will take a parcell of Land from off a Lingy Heath or Common, not worth the having, nay many will not have it to Husbandry it, and will raise most gallant Corne (that naturally is so Barren) worth six pound an Acre.

Ob.

And though some object it is good for the Father, but bad for the Sonne.

Ans.

I answer, so are all Extreames whatsoever, but if that after Liming, men



men would but study Moderation in their Tillage, and not (because the Land yeelds such abundance of Corne) till it so long as it will carry Corn, No nor so long as it will carry good Corn; But if men would after good Liming, take three, foure, or five Crops, and then lay down their Lands, to Graze, it would not be the least prejudice; or if upon the laying of it down, men would but indifferently Manure it, or else upon the last Crop you intend to Sow, Dung it well before Sowing, and lay it down upon the Rye or Wheat Stubble, It would Produce a sweet Turfe, and I am confident prove excellent Pasture, be as good again as it was before, but if after it is Layd down you would Manure it once again; A little Manure now will produce more fruit then as much more upon the old Soard, it would be war-rished for ever; Many men have had ten Crops of gallant Corne after one Substantiall Liming, some more upon very reasonable Land of about six shillings eight pence an Acre, some Land worth a little more, but more Land lesse worth, and some upon Land not worth above one or two shillings an Acre, have got many gallant Crops upon a Liming, as aforesaid; some men have had and received so much profit upon their Lands upon once Liming, as hath paid the purchase of their Lands. I my selfe had great Advance thereby, yet I lived twenty miles from Lime, and fetched it so farre by Wagon to lay upon my Lands; and so not Capable to make like Advantage as other Borderers: The Land naturall and sutable for Lime, is your light sandy Land, and mixed sound Earth, so is also your Gravell, but not so good, and your wet and cold Gravell is the worst, except your cold hungry Clay, which is worst of all.

Presidents  
for Li-  
ming.

The Land  
most na-  
turall for  
Lime.

For your Lime after it is once Slacked, and Melted, it is of a very cold Nature; for it will sadden your Land exceedingly, which is contrary to the Opinion of most Writers, who held it of a very hot nature, which is true whilst in the Stone, and Unslacked, but afterwards is Colder and Sadder then any Manure, yea, it will turn your Light Land into such a Capacity as it will beare exceeding good Lam-mas Wheat or mixed Corne.

The na-  
ture of  
Lime.

As I remember about twelve or fourteen quarter of Lime will very well Lime an Acre, you may also over-Lime it, as well as under-Lime it; Also a mixture of Lime, Manure, and Soyle together, is very excellent, especially for a few Crops, and so lay down to Graze I conceive is best; but by any means Till not long, for I say its possible the Land may yeeld Corn (being so exceedingly in Tillage, and so well wrought) as long almost as any Earth is left in it, I have seen

How  
much will  
Lime an  
Acre.



many parts Tilled so long as there hath been little left but small Stones and Peebles ; A *mad Custome*, fly from it, your Lime will sinke downwards exceedingly, use all means possible to keep it as much aloft as you can, else you lose it, and the benefit of it.

## CHAP. XVIII.

*Sheweth the nature, use, and benefit of Marle and giveth a President of the Improvement made by it.*

Marle.

**M**arle is also a very gallant thing, I can say much for it, far more then I resolve to speak to, because others have spoke much thereof, though little to my especiall purposes ; It is commended of all men, and very highly almost by every Writer, that sayes any thing in poynt of Husbandry ; therefore I'll say but little, only acquaint you with its nature, and an Experiment made of it, and the severall Lands it is most naturall for Advancement, or medioration to a little quicken the Practice where it is found, and the Search for it where it is not yet discovered.

Nature of  
Marle,

And for the nature of it, it is also of a colder nature, because it sadens the Land exceedingly, and very heavy it is, and will goe downwards also, but being so much of substance, cannot easily bury so soon as Lime will, and the description of it is not so much in Colour (as some say) as in the Purity and uncompoundednesse of it for in my Opinion be the Colour what it will, if it be pure of it selfe that it will break into bitts like a Die, or but smooth like Lead, without any Composition of Sand or Gravell ; And some others of it, if it will slack like Slate-stones, and then if it will purely slack, after a showre of Rain, question not the fruitfulnessse of it. 'Tis possible some Countries may yeeld severall Colours of Marle, as it is affirmed of *Kent*, wherein is found both Yellow, Gray, Blew, and Red, and the Red is said to be the worst there, which I will not here dispute, because it never fell under mine own Experience in that Country ; yet I will say it holds not every where, indeed the Blew and Gray are very Excellent, and so also is the Red no lesse ; And whereas the common signe is said to be Slipperinesse, or Greasinesse, in which I will not contest, but only I say there is some as good Marle as is most this day in *England*, which is not so, but as it lyeth in the Mine is pure, dry, short and if you water it, you shall find it in slipperinesse differ little from common Claves ; The only signe, but the purest and truest

Signes of  
good  
Marle de-  
scribed.Slipper-  
inesse no  
infallible  
signe.

signe



signe as aforesaid, is the uncompoundednesse of it, and if it slack also immediately after a showre, and shortly after turne to dust after it is thoroughly dry againe; And doth not congeale and conglutinate like to tough Clay, but dissolve, feare not the Opperation. Adventure the Experimenting of it, the fruit will bee answerable to thy hopes.

And now give me leave to tell thee a true Relation of one Experiment of my owne (because I speake but little but my owne Experiences) upon an hard Inclosed Wood-land Farme I rented, having some Land also in Common, amongst the rest I had about fifteen or sixteen little short Lands, or Butts, lay altogether in the Common Field; All which said Lands were so Gravelly of nature that there was but about two Inches thicknesse of Earth before you come to as perfect Gravell as any High-way, yea so exceeding herein, that it in many places turned to Sinder (like that the Smith casts forth of his fire as the corruption of his Iron, Fire and Coales congealed) and also so hungry and barren of nature, that before I converted it to Tillage, little or nothing was made of it; And to Graze, it was not worth above two shillings an Acre, yet it was Resty and old Turfe, and had laine long, may be fiteene or twenty years; And resolving to make an Experiment I searched for Marle and found it, where none had been found in mans memory, nor within many Miles of it; and in an old strong Clay Poole I conceived it lye, the which Poole I was forced to cleanse, being full of Mud, that so I might make the better and greater fall of Marle at last, and my Marle was perfect Red, differing in nothing from Clay in colour, but in the breaking into bitts and ends like Dies, not slippery, as was discernable from Clay.

A Mar-  
ling Ex-  
periment.

And because I would make an undeceiveable Experiment of it (which ever was my greatest Arrogancy) I carried forth that Mud also to my Land, and laid it upon two or three Lands, as thick againe as men use to lay on Soyle or Dung; I also Mucked with the Cart two more exceeding well, and as I remember Fold Mucked two more; Also I Marled three or foure as thick againe as I Mudded the other; And one I and I neither Mucked, Mudded, Foulded, or Marled, nor laid any cost upon it at all, yet Ploughed them all alike, and brought them into good Tillage, and Sowed them as I remember with Wheat, and Rye mixed; and for the first yeare I reaped very good Corne upon my Cart mucked Land, and Fold Mucked the best of all, the best upon my Mudded Land the next, and upon my Mar-

Some  
Mucked,  
some Foulded,  
some Marled.

One no  
cost at all



led Land reasonable good, not so good as the aforesaid sorts yeelded (because Marle yeelds not forth his utmost strength the first yeare.) And upon that I laid nothing, I reaped nothing, no not so much as Straw, although I gave it the same Seed, and the same Tillage as the aforesaid Lands. Whereby you may perceive the goodnesse of the Land, which is bad enough when it will beare no Corne at all, for very little Land in *England* that is old and Resty, and in good Tillage, but will beare some.

A double  
Experi-  
ment.

The next yeare I Sowed Barley upon all sorts of these Lands, and upon my Marled Land was most gallant Corne, and so was my Muddied Land, my Mucked Land was the worst by farre, the Muck decaying, and upon that I Soyled not. I Sowed the second yeare with Oates, and reaped nothing againe that yeare also; Then afterward I Marled that which before I had Mucked, and that which had not Soyle laid upon it, (and brought forth nothing the two years before,) brought forth as gallant Corne as *England* yeelded; And after three or foure Crops my Mud decayed also, and that I Marled againe, and had the same Fruit as aforesaid; and for my Marled Land, that I kept in Tillage nine yeares without any other addition of any Compact or Soyle at all, and had as goodly Corne as grew, and then I left the Land, and ever since with some small addition of Fold or Manure, as they doe the rest of their Lands; that out-strips all the rest, and is discernable from all the Lands to this day; herein observe how it faddens Land, this was Rye Land most naturally, but it turned to Wheat, Barley, and Pease. And as it is thus excellent for Corne, so it is also very fruitfull and enriching to Grasse-land, provided you take heed of Extreames, which most men are subject to run into, which is not to Till it out of heart, for to Till it out of heart is just as if you worke an Oxe off his leggs, a Horse off his stomack, or a Man off his strength, and then put them all to worke for Wagers with those that are in plight and strength; Try what service one of them will doe you, not a third part of that service they did before; Nor twice or thrice to Marle together I hold not proper, but when you resolve to lay down your Land to Graze, be sure at the last Crop you intend to take (which may be the fourth, fifth, or sixth after Marling) then Manure thy Land well with Dung which will so open, lighten, and loosen thy Land (for the lesse binding, and the more light, loose, and open, the more fruitfull) that it will produce a gallant Clovery, and white Hunnie-suckle Grasse, and Graze fruitfully; and then if as aforesaid, the first yeare after thou hast laid it downe upon

Marle  
faddens  
Land ex-  
ceedingly.

Extreames  
in Marling  
reproved.

How to  
lay downe  
Land to  
graze af-  
ter Mar-  
ling.



upon the Wheat or mixt Corne-stubble; thou wouldest run it over again with Dung, it would pay thee treble, I cannot forbear inculcating these two (because I see it is so little practised in any part of the Kingdom) and I know it to be so wonderfull Advantagious, untill thou pursue the practice of them, if possible never lay down thy Land to Graze but thus; Let not thy Gain or Profit of a good Crop or two, hinder thee of ten-fold more, and dishonour thy Land, Prejudice thy Posterity, and defame thy Husbandry.

Oh that this gallant Principle of Improvement of all Lands to their utmost worth, were naturally planted in all mens Breasts, to drive on all Designes for the Common good, so to Plough all thy Lands, as to make thy Lands Fittest and Richest to Graze, and then to Plough again, when thy Land decays in Grasing, and thy Ploughing shall far out profit thy Grasing. I am confident a man might so Husband the matter, as neither of these should hinder each others Fruitfulness, but both help on each others Advancement.

The  
Prime  
Principall  
in Hus-  
bandry.

Now the Lands upon which Marle yeelds great Increase, is upon your higher Sandy Land mixed or Gravelly, to whom it is as naturall, and nourishing as Bread to mans nature, and will doe well upon either of these, though somewhat mixed with Clay, but strong Clay in my opinion is very unsutable; But an exact tryall I never made thereof, therefore am not Peremptory, and although many men are of opinion that it can have little Operation upon Wet, Moyst, Land, I say so, if there be not a possibility to lay it Sound, and Wholsome, but that I believe thou mayst doe most Land by Ploughing of it up and Raising of it, as high as thy Land will beare it, and then a good Drayne or Matter Furrow, if it will serve, if not, a deeper Drayning Trench will; for Wet and too much Cold and Moysture, offends all Corne and Grasse also wheresoever as well as Marle, but thus done, Marle will yeeld great store of Corne upon this Land also out of question.

Lands  
most na-  
turall for  
Marle.

## CHAP. XIX.

*Sheweth the usefulness of Sand, and other Soyles out of the Seas and Rivers, Sands also are great Enrichments.*

**A**S for Sands nature, I conceive it warme of nature, and yet that Sand is not the cause of its Fruitfulness, for then would all Sands have the like Operation and vertue in them, but of our inland Sands, especially.



Of no  
worth or  
use at all.

especially these which are naturally the Surface of the Earth, or elyeth by Mines in Hills, and many other parts of the Kingdome, I conceive little Fruitfulnesse at all, however I challenge not Immunity herein from being deceived; I may be, for I have made no tryall at all therein, and therefore what it may doe upon a contrary naturred Land I know not, if any have found benefit I desire to learne it, for Reason hath sometime deceived me, and so may others, but Experience never shall.

Sands for  
floods  
good.

What  
Lands are  
naturall  
for sands.

But as for your Sands brought forth by the Violence of strong Land-floods, and cast upon Hills and Shelves in many Meadowes, and other places in them is Fruit and Vertue, and I question not but the Application of them, either to Corne or Graze, will produce much Fertilitee; especially being seasonably applyed to such Lands as are most different from the nature of it selfe; for whatever causeth Barrennesse, be sure to provide a Soyle that will stand in constant opposition to it, and so though one waste another, and both are weakened, yet the Earth is thereby bettered, as here the Sand is dry and warme, and something inclining to saltishnesse, the Land I conceive best for this Soyle, is moyst and cold, and while Heat and Cold, Dry and Moyst, contest together, the Earth steales from both, and is much Advanced thereby.

For in all Soyles and sorts of Earth, there is a Combustible and an Incombustible Nature; Each Wrestling with other, and the more you can occasion Quarrells and Contention by these, that is, the more you adde to that which is predominant, and so allay the distemper in the end, the more gaineth the Earth thereby; For I suppose there is a kind of contrarietie in Nature, it was ever so from the fall, and ever will till all be swallowed up again in one.

Best Sand  
of all.

But there is another sort of Sand, and that is the richest of all, and that is your Sand upon the Sea Coasts, and in the Creekes thereof, which is very rich, yet in some parts it is somewhat richer then others, as I conceive, for this Reason, because all Lands that bee bordering upon the Sea Coasts might then be Improved by them, but in many and most parts of the Kingdome the use of it is neglected, and I dare not have so uncharitable opinion of my Nation, that they would neglect so great and facile an Advantage; In *Devonshire*, upon those Coasts it is very rich, and upon the Coasts of *Cornwall* also, and so all *Wales*-ward borders, so rich, as that they carry it many miles on Horse-back unto their Lands, and make such vast Improvements, as to rayfing Corne and Grasse also, as is incredulous: Now, were it



On the Northern, Eastern, or Western Coasts, as rich as it is upon the Southern Coasts, as it may be for any contrary experience I have had, I could not believe the people to be so Dronish as they are in some parts therof, but that they would Draine out that Sweetnesse to their Lands, as would cost little or nothing but their Labour; However I must absolutely say, there must needs be great heart and fruitfulness in these Sands also, because the Richnesse of the Sands is from the fat or filth the Sea doth gather in by all Land-floods and Streams that bring it from the Lands, and also what the Tide fetches in daily from the Shores, and from that fat and brackish nature in it selfe, and from the Fish and other creatures, and thousands of other matters that putrifie in the Sea, all which the waters Casts to Shore, and purgeth forth of it selfe, and leaves in the Sands therof, while it self is cleare and pure.

What causeth so much richnesse in the Sea Sands.

And now being discoursing thereof, give me leave to let you know the Vertue and Excellencie the Sea may yeeld, further toward the Inriching of the Land, as from Fish of any sort, which is so fruitfull for the Land, that in many parts of the world they Dung their Lands therewith, but here with us, it yeelding more Advantage for Food to the reliefe of mans nature then unto the Earth; I'll say no more, unlesse any Capacitie fall in of the dead putrified Fish, which is of no other use then to this purpose; A good Advantage might bee made unto the Land thereof, as I said before, any Liquid Brackish-fat, Greasie-matter and any thing that comes from, or is the fleshy matter of the creature, whether it be by Sea or Land, hath a secret operation in it to the Earths fruitfulness; Yea, the very Urine of man is very excellent, and of all Beasts very fruitfull.

The Seas fruitfulness by Fish.

Urine fruitfull.

There is yet another Opportunitie, out of many of your great Rivers in this Kingdome, and is from a Mudde or Sludg, that lyeth frequently in deepe Rivers which is very soft, full of Eyes and Wrinkles, and little Shells, which is very Rich, yea so Rich, that in some parts of the Kingdome many men get gallant Livings onely by taking it up out of the Rivers, and selling it again by the Load; One sort whereof they sell for one shilling two pence per Load, And another sort they sell for two shillings foure pence a Load at the River side, which men fetch twenty Miles an end for the Inriching of their Land for Corn and Grasse; One Load going as farre as three Load of the best Horse or Cow-dung that can be made; They call it *Snayle-Cod*, and it hath in it many Snayles and Shells, which is conceived occasioneth the Fatnesse of it; The great Experience of this Piece, is made upon that part of the River *Thames*, which runs from

*Snayle Cod.*

The richness of *Snayle Cod.*



Where  
the right  
Snayle is  
to be got.  
The chief  
River  
wherein  
this Mud  
lyeth  
comes  
fromward  
Exbridge  
by Cole-  
brook, and  
is not the  
Thames  
as I can  
yet disco-  
ver, ha-  
ving made  
a Journey  
thither  
since I  
wrote the  
aforesaid  
discourse.  
Mud in  
Rivers of  
great use.

*Oxford* and *Reading* down to *Brainford*, and if my Information faile not (which I conceive I have from as good a hand, a Gentleman full of great Experiences in Husbandrie Improvements; as hath not many Fellowes.) The Lord *Cottington* drawing part of the River through his Parke at *Hanworth*, hath cut in the same River many Outlets or Ponds, somewhat deeper then the River, on purpose to receive the same, from out of which is usually taken up great store of Mud for the Advance of the Upper Lands, but whether this be that richest Snayle-Codd I cannot say, but believe it is very good, but upwards as high as *Cole-Brooke*, in that River it lyeth plentifully, all which not falling under mine own Experience, I can say little more unto for present, neither for the seasons of applying it unto the Land, nor the manner of working the Land to it, I dare not prescribe.

Onely hence I conclude, there may as well be the same opportunity in most Rivers in the Kingdome, which is a most unutterable Advantage; But I can say, there is in most, if not in all Rivers, a very good Rich Mud, of great fruitfulness, which were it more sought after, would work on more Experiments, and produce Advantage unexpected, it costing nothing but labour getting, nor prejudiceth any, but profit to all by clearing the Rivers, and great worth and vertue it must needs have in it, being the Soyle of the Pastures, and Fields, common streets, Wayes, Yards, and Dung-hills; All collected by the Floud, and drawn thither, where it concentrates into Shelyes, and Mines as I may so call it, and remains for ever as an undiscovered Advantage, where no use is made of it; but hereof more, if God give opportunity to the Author of Experimenting both this and others of the same nature to the utmost Advancement of it otherwise, and in the mean while inquire it out thy selfe.

## CHAP. XX.

*Treatise of the use and nature of Chalke, Mud of Pooles, Pidgeons and Swines Dung and other Soyles and Manures therein contained.*

Bacon's na-  
turall Hi-  
story,  
p. 123.  
Chalke.

**A**S for Chalke, Sir *Francis Bacon* affirms it to bee of an over-heating nature to the Land, and is best for Cold and Moist Land, but as it appears to me in *Hartfordshire*, and other parts thereabout, there are great Improvements to be made upon Barren, Gravelly, Flinty Lands, and it hath great fruitfulness in it, but not having false under my own Experience, I dare affirme little therein, onely



onely advise any that have opportunity therein to be well resolved of the fruitfulness of the said Chalke, or of the nature of the said Lands, for there is much Chalke, and great Mines thereof, that is of so churlish a binding nature, that it will so sodder and bind, and hold the Water upon the top of the Earth so long till it destroy the Corne, nor worke a sterility in the Earth, that neither Corne or Ground shall yeeld but little fruit; but there is Chalke in thousand places of great fruitfulness for Improvement.

And I also conceive that, Chalke, Earth, and Manure mixed together, makes an Admirable, sure, and naturall fruitfull composition for almost a y fort of Lands, and is a very Excellent, Unfallible Remedy against Barrennesse, and raiseth Corn in abundance, and enricheth it also for Graving when you lay it down.

Chalk mixed most certainly.

Also the Mud of old standing Pooles and Ditches, the shovelling of streets, and Yards, and High-wayes, the Over-swarthes of Common Lanes, or of Commons neere Hedges, is very good, both of it selfe, and compounded with other Soyle, Manure, Mud, or Straw; And very much account made thereof in some Countries; nay more then this of Manure that is made of Horse, or Cow, for some sorts of Land, and some sorts of Corne, which I conceive is for Lands very Flinty, Stony, and Gravelly, or a little mixed with Clay amongst them; as also for Wheat and Barley it is very naturall, and is of constant use and great esteem in *Hertsfordshire, Essex, Suffex*, and divers Countries thereabout, and also to great Advantage being put in Execution in most of the Counties in this Kingdome, if Ingenuity were of as good esteem amongst us all, as is A base Outlandish fashion, for no sooner can that be brought into any part of the Kingdome, but it will be dispersed presently into all the parts thereof; but such as these, that are Advantage to all, and vastly profitable to the Practitioner and Common-wealth are slighted and little practised.

Mud.

Ingenuity not of such esteem as a base Outlandish fashion.

Earth of a saltish nature is fruitfull, especially all such Earth as lyes dry, covered with Hovells, or Houses, of which you make Salt-Peter, is rich for Land.

Earth covered very rich.

There are many other gallant Soyles or Manure, as your Pidgeons dung, a load whereof is more worth then twenty shillings in many parts, your Hens and Poultry dung, that live on Corn is very Excellent, these being of a very hot, and warme and brackish nature, are a very Excellent Soyle for a cold moist natured Land, Two load hereof will very richly Manure an Acre; so is all Dung, the more it is raised from Corne or richer matter, the richer it selfe is usually by

Pidgeons and Poultry dung.



farre; as where Horses are highly Corned, the richer is the dung then those onely kept with Hay.

Swines  
dung most  
excellent  
Soyle.

There is another sort of Soyle, and that is Swines dung, by most accounted the worst of all, nay not worth preserving, out of an old received Tradition taken up by most men, upon what ground I know not, and so generally disliked of almost every one, and therefore they will not Experiment it, and most an end no use at all is made thereof possibly it came from *Scotland*, who knew they but the Excellency thereof, they would love the flesh the better for the dung sake.

Which to me is very irrationall, that an English man who loves Swines flesh so well, that more Account and use is made of all the parts of him rather then of the Biefe or Sheep; yea his very blood and guts are highly prised, and yet the Soyle of him so much undervalued.

The great  
account  
of swines  
dung.

This Dung is very rich for Corn or Grasse, or any Land, yea of such Account to many Ingenuous Husbands, that they preferre it above any ordinary Manure whatsoever, therefore they make the Hogs yards most compleat with an high pale, paved well with Pibble or Gravel in the bottome, where they set their Troughs partly in, and some part without the Pale, into which they put their meat, but the most neatest Husbands, indeed plant their Trough without their Pale or Hoggard, all along by the side of it, and for every Hog they

The usage  
of their  
Swine,  
and the  
making of  
the Hog-  
yard.  
How to  
feed swine  
without  
any cor-  
nish meat.

have a hole cut the just Proportion of his Head and Neck, and out thereof he eats his meat forth of the Trough very cleanly and sweet, they keep the Trough also very clean, they have their house for lodging by it selfe with dry Straw alway for him to lye in, and their cornish Muskings they cast into the great Yard, and all Garbidge, and all Leaves, out of Gardens, and all Muskings forth of their Barnes, and of their Courts, and Yards, and great store of Straw or Weeds, and Fearn, or any thing for the Swine to root amongst, to make all the Dung they can, and here they keep their Swine the yeare round, never suffering them to go one day abroad, and here your dayry Husbands or Houlwives, will feed them as fat as Pease or Beanes, and are of opinion that they feed Better, and Fatter, and with lesse meat, then when they are abroad with all their Grasse they Spoyle; Which I doe more then three quarters believe. Some Hog-yards will yeeld you forty or fifty Load, and some more, of Excellent Manure of ten or twelve Swine, which they value every Load worth about two shillings six pence a Load in their very Yards, and prise it above any other; This is practised much about *Kingsnorton*, both in the Counties



of *Worcester* and *Warwick*, and in many other parts, as in *Cheshire*, *Staffordshire*, *Derbyshire*, also as I believe, an Excellent Piece of Husbandry; I speak Experimentally hereof, having made great Advantage my selfe hereby.

As for Rags of all sorts there is good vertue in them, they are carried far and layd upon the Lands, and have in them a warming Improving temper, one good Load will goe as far as halfe a dozen or more of the best Cow-Dung. Course Wooll, Nippings, and Tarry Pitchmarkes, a little whereof, will doe an Acre of Land, there is great vertue in them. I believe one Load hereof will exceedingly well Manure halfe an Acre. Marrow-bones, or Fish-bones, Horne or shavings of Horne, or Broaths made of Biese, Meat, or Fish, or any other thing whatsoever, that hath any Liquidnesse, Oylineffe, or Fatnesse, have a wonderfull vertue in them, let all beeprecious to thee, and preserved, for every little adds to, and helps in the Common Stock, and he that will not be faithfull in a little, will not be faithfull in a greater quantity, as is alway seen by constant Experience.

Raggs.

Woolls.

Marrow  
bone.  
Biese  
broth.

As for Sheep-Dung, Cow-Dung, and Horse-Dung, such old ordinary Soyle, I intend to say little, in regard the Common use thereof, which hath extracted the vertue and excellency to the Kingdomes great Advantage, onely thus much I shall say by way of advice, and reprove from my own Experience.

Sheep  
Dung.

1. By way of advice Prize them according to their worth: The Sheeps Dung is best, and a little hereof is of more strength and heart then the others are, but whether it arise from the rich, and pure nature of the Dung or from the warmth of the Sheeps bodies, I know not, but I conceive from both, because it warms the Land, and makes it comfortable; And for your Horse-Dung that is held to be too hot, but I never sensibly discern any Inconveniencies therein, especially where it is feared, let it be but well Wroxed or Rotten, and I conceive it is one of the best compost for Land, and I am sure, if it bee Soyle of Hories, or Stables where is much Corne given, it is more hearty and rich by far, then that where Horses live on Hay only; And for Cow-Dung 'tis so well known by all, both in nature and use, that I'll save further trouble.

Horse  
Dung.

2. But by way of Repröofe of one Piece of Husbandry in the applying these three sorts of Dung to Land, I say; Men are mistaken, in that they indeavour not all possible Expedition in laying their Dung upon their Land, when once they begin, and in spreading of it, as soon as layd on, and Ploughing of it into the Land, as soon as spread,



A great  
mistake in  
letting  
Soyle be  
uncover-  
ed.

spread, for if my Judgement faile not, they lose a great part of the Fruit, Sap, and Vertue thereof, that carry it forth unto their Land about *Midsummer*, or in that heat of Summer, and spread it all over their Land, and so let it lye open to the Ayre and drying Winds, and parching Sun, and Showres, which comming hastily help to wash it off their Land, and thus lyeth for a moneth or six weeks before they Plough it into their Lands, all over the Field or Country, and many places more, which besides the Raynes washing away, consider but the Winds drying, and the Sun and Heat Parching, and Scorching of it, and Exhaling and Drawing away the Spirit of it, and then tell me the Excellency of this Husbandry, to me it seems not rationall, I'll submit to better Judgements, they that are of a contrary opinion, I desire them to shew me Reason, and inform me better; And till I know better, I desire to be excused.

How to  
lose none  
of the  
least be-  
nefit in  
mucking  
any Land  
notwith-  
standing  
Land-  
floods.

Some lose  
no Land-  
flood at  
all.

And for their Sheeps Dung, as soon as ever one Land is fouled, let the Soyle be covered Immediately, let the season or weather be what it will: Also in the Manuring your Green-Soard or Grasse Land doe little in the Summer, but either in the later end of it, after *Septem-ber*, or else all Winter long is the proper season, when it may have Raine to beat it into the ground, or Frost to Wrox it and dissolve it, And though sudden showres will wash some away, which is farre lesse upon Grasse ground then Tillage, yet if thou have any Land both below or under that thou Manurest, thou needest not lose the least benefit, if thou please to turn it over, and let it float thy other Land, with that which the Land-flood otherwise would carry away; And this course some Ingenious Husbonds hold in all their Lands, What Rain or Land-floods fall in their upper grounds, they carry in- to the next below that, and float there, then what falls in that, with the rest of that which is a floating, there they carry into the next, and so into the lowest, and so will not lose so much as the advantage of a Common Ditch that carries the least Land-flood with it, but this falls in occasionally here, and therefore no more hereof.

Urine of  
mankind  
usefull for  
Lands.  
Ashes.

Soot.

Mans Urine is of great worth, this will fatten Land more then you are aware of, and it were not ill Husbandry to take all Opportunities to preserve it for thy Land.

Ashes also have a secret vertue and opperation, of what nature soever or sort, that are burned throughly to dust, but your Wood-ashes are best, and usefull for Soyle and Compott. Soot also hath a vertue of fruitfulness for Field or Garden as some affirme, but I conceive the most proper Soyle for Gardens are your Sheep-dung,  
your



your Hen muck & Pidgeons dung, with your well rotted Horse muck, especially for cold Land; or else the rich Moulds, or any good Manure that is growne to Mould, is as good and naturall as any of the foresaid Soyles, provided you lay good store of it thereon; and so also as I conceive it is best for your Orchards, or young Nurseries of Fruit Trees, but of neither Garden nor Orchards Advance is my designe for present, and so no more of that, much may be hereafter.

Best Manure for Gardens.

Stubble of all sorts, and other Vegetables, the more in quantity, or Straw, or Hay, tothered upon the Land is very helpfull, and of good use with every Husbandman, that I need say no more thereof.

Stubble, or Straw.

Sir *Francis Bacon* is of opinion, that Salt mingled with Corne hath a very good operation being sowed with the Corne, which possibly may, because brakishnesse is fruitfull to the Land. Also that Chalke and Lime Sowed with the Corne is very helpfull, and that steeping your Corne in fat Water, Lime-water, or Dung-hill Water, hath a wonderfull effect to worke strange things. Of all which my selfe having not made full Experience, can find no more Advantage therein, then just so much as is added to the Corne, either of the Chalk or Lime in substance, or so much as is added of the Soyle or fatnesse of either of the Waters and no more; For having made a thorough triall thereof found no otherwise, nor nothing of that great Advantage promised; But let not me prejudice any Ingenious trials of the same, others may find more, possibly I might misse in the manner of my application.

Salts effect.

How much Liming Corn, or watering Corn advanceth it.

As for Oyle, I am confident it is of a very enriching nature to Land or Corne, but whither the cost required will be requited I leave to Experience, for I have not forgotten the Oyling-Corne Patentee, that great designe to so little purpose; who drew so many Scholars after him, but I had the happinesse to escape him.

Oyle, the fruit thereof.

The Leaves of Trees laid together, or cast into some High-way, or Water-flows, or mingled with other Soyles, will make very good Compost also.

Leaves of Trees.

Also Fearne, or Rushes, Thistles, or any course Straw, or Trash whatever, flung or cast into the Forthering-yards, among your Cribbs under your Cartell, will be both good Litter to lay your Cartell dry, and warme, and will make very good Soyle, as all good Husbands know.

Fearne or Rushes will make soyle.

Some more particulars may be spoke too, and some further directions given, but I'll forbear Experiencing these, will work out more discoveries. So much for this fourth Piece.

The



*The fifth Parcell or Piece, which is a new Erection, or Plantation of divers sorts of Wood, and Timber, in such a way as shall raise as much in twenty yeares growth, as usually and naturally groweth in forty or fifty yeares, whereby the decays or Ruines of Wood in this Kingdome may be gallantly repaired, and severall Groves or Plumps of Trees may be Erected about any Manour, House, or Place, for delight and pleasure; And in such severall formes as men desire, and as much Wood for quantity raised in one Acre, as is usually in three, foure, or five Acres of our usuall Coppices, or Spring-woods in most part of this Kingdome. As also how to thicken those Spring-woods that grow so thin, as usually most doe, whereby they might be made as thick againe and yet not hinder the growth thereof.*

### CHAP. XXI.

*Speakes of the nature of the Land, and sheweth the severall sorts of Wood, and how to plot out the same to most delight.*

**T**O which purpose let all men use their utmost indeavours and skill to lay their Woods and Coppices, or Spring of Woods, as dry as possibly they can, for Wet and Coldnesse is as prejudiciall, and offensive to the fruitfulnessse thereof, as it is to Corne or Grasse, or any Fruit Trees, whether Apples, Peares, Plums, Cherries, &c. All which though every man indeavours little herein and though to their ancient Spring Woods, little opportunity can be gained, yet what can be gained hereto, prosecute it, as of great Advantage.

And for a new Erection of Wood, where never any grew, and raising a new Plantation, which is one of my maine designs, a Piece so little practised, which before I have fully ended, you will wonder it should have been so much neglected being so feacible.

Therefore when thou hast designed a Piece or Plot of ground thereto, which should be dry, sound, and pretty hearty, thou needest not much matter what nature of Land it be, so that thou canst get two Spade graft, or one and an halfe of good Earth, before thou either come to the strong Clay or Sand, yea though it have some Gravell, or Stones, be it but well mixed with good Earth it may doe well, yea best of all, because of hollownesse and lightnesse of it, though it should be very boggy Land, yet if it have but any richnesse of nature or heart in it, thou shall find a marvellous sutablenesse therein, to make a very good Improvement this way, yet the most naturall Land hereto in the Experiences I have made or seen, is your warme,

open,

The most  
naturall  
Land to  
plant with  
wood.



open, gravelly, sound Land, the richer the better, as aforesaid.

When thou wouldst Plot out thy Land thou designest to plant, which thou mayst cast out if thou aime at thy delight and pleasure onely, either into a Square, consisting of foure equall sides, or else into a Triangle, having but three equall sides, or else into a Square, which hath two equall sides longer, and two equall sides shorter, or an Ovall Capacity; or else into a Circular plot either, as thy Phantasie leads thee, or if thou mindest onely thy profit, and intendest onely to raise Wood for thy use, and increase, and the Countries service, It matters not into what forme thou cast it into; how ever seeing at the first it is as easie, and no more chargeable, to cast or lot out thy Wood into an Artificiall uniformable Plot, as to doe it rudely or confusedly, I rather advise it, but presse it not, no further then as to the Gallantry and delightfulness of it, or thy Spirit thereto, wherein may be as much pleasure, Delight and Recreation, as in your curious Gardens, Orchards, Walkes and Bowers, especially being planted about a Mannor House, or dwelling place for warmth in the Winter, and Shaddow and Coolenesse in the Summer, for which Advantages many of the Nobles and Gentry of this Kingdome would give great Sums to purchase; Which hereby may be obtained at an easier rate.

How to  
cast out  
thy Wood  
plots for  
pleasure.

Therefore having cast thy Land into any of the Plots aforesaid, except the Circular which I conceive of least sutablenesse of all to this worke, then suppose it be ten, twenty or thirty Acres, I suppose lesse, if thou cast it into a Square, or Triangle, or Ovall way, then having found the middle of it, thou mayst if thou please, cast out a Circular round Plot or Ovall containing either a ninth part, or a seaventeenth part, or but a fifth part. And that Incompasse in with a little Ditch, well quicksetted with thorne, and here and there an Ash, Oake, Elme, or Witchazell reserving a Grasse-Plot to walke round about, of twelve or fifteen Foot wide and then equally divide the rest into so many parts as thou intendest severall falls therein, and every Division separate with a Walke, or Grasse-Plot betwixt them, containing twelve or fifteen Foot widenesse, which will serve as a Cart-way, or Passage, to fetch out thy Wood at every fall, as well as for walkes for thy recreation, because in this manner of Planting, thou canst not Cart along thy Wood, as thou dost along thy usuall spring Woods, but onely along thy Borders, which when thou hast so divided all by Ditches which make thy divisions, thou mayst, if thou pleasest to cast thy Banks outward, and set thy Hedge inward, Plant

How to  
cast out  
thy Plots  
into most  
delightful  
divisions.

Planting  
of Oses is  
excellent.



the Bankes with Oses, which will delight themselves herein, and grow fruitfully, either on the Sun or Shady sides. Now when thou hast plotted out thy ground, prepare for Planting, and first inquire, and search about the Country for Set-gatherers, such as will bring them in ever two dayes fresh, for the fresh gathering and sudden setting of them in their places, is of more Advantage to the furtherance of the growth, than thou Imaginest.

How to  
get thy  
sets for  
Planting.

Secondly, prepare such Servants herein as will not deceive thee ; And avoyd the getting of Eaten, Bitten, Rough, and Brushy, all being unproveable sets, receive them not, but give them such wages, as they may afford to get such as are fruitfull and proveable, and if possible get them from off as hard Land, as thou Plantest them upon; however be sure they be thriving smooth-Rooted, or smooth-Barked sets, of what sort soever they be, and as straight as possible thou canst procure.

The quic-  
kest grow-  
ing wood.

Thirdly, for the severall sorts of Wood quickest in rising and growing, generally are your soft Woods ; as Poplar, Willows, Aspe, Sycamores, Maples, Witchazell, &c. your Ash is a gallant thriving Wood, also, and indeed for quicknesse and profit too, it is the best in my Opinion, some good Oake sets will doe very well, and Elme also towards your outsidcs, but if thou resolvest to bee a Planter to purpose ; then thou must be a Sower of all Seeds of the severall Woods aforesaid, or Setter of many Sciences, and a Breeder up of Nurseries continually, for indeed were Planting more in fashion, Sets would prove very scarce, which now for present are plentiful enough, and in most part of the Kingdome may be had for two shillings, or two shillings sixpence a thousand, some more, some lesse, according to the goodnesse and bignesse of them, and dearnesse of the Country for workmens wages, and indeed the lesser the Sets, the more certain for growing, but the bigger they are the faster, and sooner they rise to growth, only some of them may faile.

What Sets  
are best.

How to  
Plant thy  
Sets.

How to  
make thy  
Dike to  
plant thy  
Sets in.

Fourthly, having prepared thy Sets, then set to Planting of them, which I advise after this manner, All thy Borders made or but cast out, thy Sets must all be Planted in the same way as thou wouldest Plant, or as usually men doe Plant a Thorne hedge : First cast up by a Line, a little Ditch about two Foot, and halfe, or three Foot Broad, just so deepe, and but a little deeper then thou canst take up good mould, and so as all Labourers begin their turning Turfe, doe thou and then lay up a little mould, and there lay thy first Row of Sets, some say three Sets in each Foot, but I conceive if thy Sets be



bee good, two may doe very well, then cover them.

Secondly, raise another Border about nine Inches above that, thy Mould or Banke layed well a shore, or sloping, and there plant another Row, and cover them well also, as men doe their second Row of Quick-sets.

Thirdly, cast up another Dike against that, like a double Dike, so as both may meet together upon the Top, and lye close together, and then plant two Rows more of Quick as was directed on the other side, and if thou hast any quantity of space, betwixt thy two upper Rows of Quick, thou maist plant one Row upon the Top, or two, if thou seest cause, if thou hast roome to spare; And so thou must goe on throughout thy whole Plantation, a Dike and a Land or Banke, and again another Dike and a Land, and so throughout. And be sure how-ever thou doe, to plant all thy Sets in the upper-most best Mould or Earth, that thy Sets may neither root in stiffe-binding Clay, nor hungry Sand, and feare not, leave no Land undigged or unwrought, nor plant none in Green-soard by no means.

How to  
plant thy  
Quick,  
& mould  
them also.

'Tis a simple Piece I confesse to make good the issue promised, but when thou hast proved the truth of it, then thou shalt be better able to judge of it. Many Objections will be raised against it, but let not the simplicity thereof offend thee, for I shall assure thee, I shall give thee such a President before I have done, and leave the thing so clear, that there shall not be left the least cause of Suspition.

## CHAP. XXII.

*Answereth severall Objections against this Projection, and gives a President for making good the same.*

**T**Hat you will lay your Land so dry, and deprive your Sets of all Moisture, that it is Impossible they should grow at all, especially in dry, sandy, or gravelly Land, much lesse to grow to such an Increase as is promised. Obi.

Hath two branches; First, all Sets and Plants, for the most part require Soundnesse, and warmnesse, and were many of our Spring Woods more dry, and warme, they would prosper much the better, although much dry, haskey, sandy, hungry Land doth not many times afford a thick Coppice, or good Spring, which is especially occasioned by reason of the Barrennesse of the Land, and the ill Husbanding of the Spring after falling, not Preserving of it from Cattels bruising Answ. 1.



of it, as will appeare more fully before this Discourse be ended. But  
*Ans. 2.* secondly, Experience shewes the same, that upon a sandy gravelly Land, all the aforesaid Woods prosper exceedingly in the way of the aforesaid Planting, in so much that should I tell you the Experience thereof, you would a little wonder at it.

A Presi-  
 dent of  
 Wood  
 Planted,  
 that one  
 Acre was  
 worth 60  
*li.* at ele-  
 ven years  
 growth.  
 What an  
 Acre costs  
 Planting.

A new Erection planted twelve years sithence, at the Eleventh years end a fall was made, & so much Wood cut upon the same as was worth or sold for 60 *li.* pound an Acre or more; it was much Pole wood, yea a good part of it made Sparrs, and some part of it small building Timber, so that a Gentleman of that County, builded him- selfe part of a very good Barne, the whole Roote of it with that Timber; and this yeare was another Sale of Eleven years growth of as good a Value, the Land it was Planted on was worth about ten shillings *per* Acre, and every Acre cost somewhat under seven pounds an Acre, all Digged Quick-sets, and all charges in the Planting of it; And the second Crop they mak accompt will be as good at eight years growth; And to me it seems possible it may, if not better. This President is at *Billing*, at the Earle of *Toomans* in *Northamptonshire*, managed by a most Ingenuous Gentleman, called Master *Cartwright*.

*Ob.* This way of Planting will certainly be so thick, that they cannot prosper one by another, or else it is impossible the Earth should yee'd Fruit, Heart or Sap, to so thick a Plantation.

*Ans. 1.* Your Spring woods, in some parts of them grow as thick, especially where your old Roots grow so thick, as you can scarce set one foot betwixt them, and every Root may send forth twenty or forty Spineys, and yet all nourished from the Earth, and these Stooles they grow upon a so.

*Ans. 2.* Secondly, I answer that Experience hath also made it good as aforesaid; For other Planters in these parts Planted a foot or more asunder, and yet came not neere this, nor is neither halfe so much in quantitie; Nor yet the other thinner Plantation, although little or never the whit the bigger, or taller, then this, which is so thick Planted, nor never worth so much by the Acre of many more yeares growth, as this at the Eleventh yeare.

And for the effecting this Designe, thou must take in two or three more particulars, one is a strict Observation of the Season in Planting; And then secondly, your Demeanure towards it after Planted.

First, The Seasons are as soon as the Lease is false, the earlier the better, faile not to be well prepared of Materialls to begin with *November*,



ember, and so thou mayst continue three months compleat untill the end of January, and possibly some part of February, but is somewhat hazardous, and may exceedingly faile thy Expectation. And for the Moons Increasing or Declining matter it not at all, nor any Season, Wet or Dry, Frost or Snow, so that thy Labourers can but worke, and be sure that what Sets be gathered one day, may be Set the next if possibly, or next after; And shouldest thou be occasioned by any hindrance, to keep thy Sets longer Unset, be sure thou get their Roots into the Ground, well covered with good Mould untill thou canst Set them, and be not drawne away to the contrary, by any Workmans perswasion whatsoever, for though the lying out of Mould or Unset, doe not kill them, yet it will so backen them, that thou mayst lose a full half yeares growth in them.

No obser-  
vation of  
the Moon.  
Eccl 11.  
4. 5 6.

Secondly, Thy Ground thus Planted, thou must be carefull in the Weeding of it, for I know no greater cause of this so great Advance then this; The keeping of the Ground cleane from Weeds, and as mellow and open as possibly which will cause the Roots to shoot Exceedingly, and the Plant to grow abundantly, thou must for the first, and second yeare prize it, and dresse it, almost as a Garden; And therefore be sure thou preserve it from any Beast, Horse, or Sheepe, biting it, in the least measure; should Cat-tell breake in, they would destroy one yeares growth in a moment.

Weeding  
most ne-  
cessary.

As for thy Boggy Land, much of it that is perfectly Drained to the bot-tome, that is little worth, will nourish a Plantation of Wood to good Advantage especially your Poplar, and Willow, and Alder, your Ash will grow well also; But therein you must observe, to make your Dikes and Draines so deepe, that you may lay it compleatly dry, you must goe under all your Bogge, to the cold spring-Spring, and neare a foot below that, and then what you Plant upon the Bogs, or Lands, you may expect a wonderfull Issue: 'Tis very common, in foure or five yeares, that the Willow rises to gallant Hurdle-wood, and in five or six yeares, to Abun-dance of Fire-wood and smal Pole for Hops, and other Uses. One Acre of new-Planted Willow, upon some Land not worth two shillings an Acre, may in Seaven yeares be worth neare about five pound, in some parts, an Acre; And in some parts of the Kingdome more. And I verily beleeve, were all the Boggie-Lands in England thus Planted, and Husbandred well, after these Directi ons, might raise Wood enough, to maintaine a great part of this Kingdome in Firing; And for other sorts of Wood, the well Orde-ring and Nourishing it, although in Lands so bad, would produce a won-derfull Profit, far more then I will speake of.

Boggy-  
Land will  
bring  
forth a  
Plantati-  
on of  
Wood.

What one  
Acre of  
Willow  
Planted  
on Boggy  
Lands  
may bee  
worth.

And I suppose, he is no ill Husband that can raise a Bog to a double Advance, considering some of them are worse then nothing; But when they are so Exceeding Couise and Barren, you cannot expect such Fruitful-



ness or advance, as from that Land that is of a fatter or better nature ; For certain all Plants and Woods will doe much better, on better Land then on courser ; And in case thou shouldst bestow Soyle or Manure on thy Land before thou Plant it, it would be both Labour and Cost exceeding well bestowed, and conduce much to the nourishing of a young Plantation.

How to  
thick  
Woods  
that grow  
too thin.

Now shall follow a Piece or Device how to thicken your Springs or Coppices, where they grow thin or are decayed ; Which fully observed, may doubly Improve the same, and such a way is here projected as is little used in any Woods where I ever yet came, and as unlikely also as any thing I have spoken unto, which is no more but this : At every Fall, where thy Wood groweth thin, take a good straight Pole, growing of Ash or Willow, at the usuall groweth of the Wood, and Plash it down to the Ground, about foure or five Inches about the top of the Ground ; not cutting it wholly off, and cut off the head of it, and put the upper end of the Pole after the head cut off, a little into the Ground, which thou mayst doe, by bending it in the middest like a Bow, and so thrust it in, and so fasten it down, once or twice from the middle of it, and upwards, close to the Ground with a Hooke or two, and out thence where any branch would put forth standing, will put forth lying, and more and more grow up to Plants and Poles, as the other Spring doth, and so you may, though it bee incapable of Sets, or planting with the Root, lay over all your Vacant places, and thicken your Woods where ever they are wanting.

A Presi-  
dent of a  
Wood  
thickned.

And let me beg of thee thy credence here, it is most certain, I speak out of my own Experience, one of the gallantest Woods I know in *England*, it is constantly used at every Fall in some place or other of it ; the Wood is eighteen falls, every fall eighteen yeares growth ; their very Faggots made at length of the Wood (besides all their Pole-woods) all their Brush being Fagotted Into the Faggot, were this yeare sold for one pound three shillings foure pence a hundred, and forty Faggots make a Load it is worth about twenty five pounds an Acre every fall : Study warmth all that possibly thou canst, for any Plants are helped much in mounting aloft thereby ; therefore as I conceive they prosper worst upon your cold Clay which nourisheth the Tree little, and hath no quicknesse nor life to quicken the growth thereof ; but by the toughnesse and coldnesse of the Earth the Sap is shut in, and cannot get up to spread so frankly as it should, and so in stead of thriving of the Tree, the Mosse prospereth more fruitfully then the Tree.

Elme  
Plants.

Your Elme Plants may be gotten of young sprouts growing forth of the Roots of the old Elme, many thousands, which being slipped and set, will grow very fruitfully.

Sica-  
moore  
Plants.

Your Sicamoore is a very quick growing and thriving Wood, especially if



if it be planted upon warme, sound, and rich Land, they will thrive wonderfully, and rise to gallant shade, Excellent to make Walkes, and Shadow-bowers, are also very usefull for all common use about building, and good Fuell for firing.

As for Sets of this nature, if you goe to any place where Sicamoores grow, and there in the beginning of the Spring you shall find the Seeds chitted up and down as thick as possible; which gather up and let them Presently, and you shall have your increase at large, being preserved curiously from any the least prejudice of biting, breaking, or shaking the said Trees after Planting, according to the first directions; and so I proceed to the Sixth and last Piece of Improvement.

*The Sixth and last Piece of Improvement consisteth of a more moderate Advance of all other sorts of Lands, not capable of the aforesaid Improvements, by enriching some of them by other wayes of Husbandry, which although they will not make up so great an Advance, yet will be very considerable, and worthy the Practice of any Ingenious spirit.*

## CHAP. XXIII.

*Treating of improving the richest Land.*

**A**Nd first for your richest sorts of Land conceived as good as Art and Richest Nature can make them, yet consider the ensuing Discourse, may hold out some Improvement to be made out of the same. As for your best Land of all, much whereof may be cleare from Rushes, Mossiness, Sow-Thistle, Nettles, Weeds, and Hemlocks; and only bring forth pure Grasse, both thick and rich; this possibly may admit of little Improvement upon it selfe, but unto the Owner and Common-wealth, this may yeeld above double profit for some yeares by moderate Ploughing, and afterward return so soon to his naturall fruitfulnessse, as that it shall yeeld his old Grazing Rent the first yeare, and so continue; But this Land being of all other the most subject to Abuse, and greater Prejudice then any other Land whatsoever; And I am confident unlesse the Precedent directions contained in the third Piece, the Fourteenth and Fifteenth Chapter, be most punctually observed, it may suffer losse, therefore I must provoke no man to take the pursuance of them here, unlesse any who is of such a publike spirit, as rather desires the Publike then his own private Advancement; And for some other men when they find so great profit, come in upon them by this or any other meanes, they out of a thirsty desire of gain will Over-doe, Over-plough, and so destroy their Land: for it is not Ploughing simply, as aforesaid, Destruction of the best Land is by over-ploughing.



Mowing  
Land a  
great Im-  
poverish-  
ing.  
Moderate  
Plough-  
ing better  
then unli-  
mited  
Mowing.

Plough-  
ing left  
indiffe-  
rent upon  
the Rich-  
est Lands.

said, that impoverisheth Land but too oft Ploughing, and look you where you will generally throughout this Kingdome, and you will find where any good Pasture is destroyed hereby they have Ploughed Six Seven, and some Nine, Ten, and some Twelve Crops together, which I approve so well, as I say it is a losing Extream; And I wish it were felony so to abuse a mans Self, Lands, Posteritie, and Common-Wealth; Also which Lands may be so many years before they come to a perfect Soard again, as may lose as much in Abatement of Rent before it come up to the old Rent, as they got in the Advance Rent by Ploughing, And yet if I affirme that Mowing Land without Limitation, is as Impoverishing unto it as Ploughing Land with moderation; Especially Upland Pasture I should not much mistake I am a greater Enemy to the one without Limit, then to the other with Moderation, yet the one is cried down by all and the other by few or none; Therefore my Advice shall be, to Plough thy Land three, foure, or five Crops, if thy affections stand that way, and lookest at greatest Profit, Sowing it first with Hempe, Oade, or something else that better agrees with the rankness of so gallant Land, which for divers of the first yeares will be so ranke, that Corn will fall Flat, and Dvindle, or Rot, and neither be kindly in qualitie, nor rise to the strike in quantitie, as it vwill upon those Lands after divers Crops taken, nor upon leaner Land, and then after with Corn the last yeares. And if thou wilt but lay it down round, and even upon the Wheat, Rye, or Messin Stubble Sowed in his proper Season, observing some other few Directions, handled more at large in the aforesaid Chapters, thou shalt not need to feare thy Lands Impoverishing or Abating Rent: It will produce so gallant and sweet a Turfe, as shall feed as well, and faster then it did before, if not better: For my own part, I doe affirme, That had I the managing it whilst under Tillage, I would make good the same upon good Securitie. But as I said before, use your own libertie, he that Ploughs not such Land at all that yeelds its utmost strength and fruit, which admits of no Corruption or degeneration, doth well: Because the Kingdome will afford other Land enough, that stands in more need of this Husbandrie to supply the Kingdom with Corn. And also, because many men hold it a great Disparagement to Plough up such gallant Pasture, from whom I doe very little or nothing dissent in Judgement, yet he that (if by Ploughing) can Advance the Publike and himselfe also, I dare not say but he doth better, yet neither much amisse; Every man herein please his own affections, where the Common-wealth is not eminently prejudiced.

But for other wayes of Improvement of the Richest sort of Land, I know little more worth Divulging, for either the Cost and Charge expended will not produce an answerable present Advantage, or else



else the continuance and certaintie of future hopes may prove doubtfull; Which Uncertainties I affect not, onely take this Remembrance with thee, that if thy Pasture be very Vast, and Large; <sup>Divisions of Lands occasions Advance.</sup> ~~Less~~ Divisions will set a dearer and better, and are every mans money for Conveniencie, when greater are bargaines for few men, and those great ones also that will make their own Advantage, yet use moderation herein also; A large Pasture is comely, and a little Pingle In- <sup>Small Divisions reproved.</sup> convenient, Extreame is neither for Credit, nor Profit, but for Destruction; A Pasture about one hundred, or one hundred and fifty Acres is much Commendable; But in thy Divisions bee sure to make them alwayes in the lowest parts of thy Lands, that so thy Ditches may serve in stead of Draines, or Convoyances of Water, or taking away the Coldnesse that offends thy Land, every mans own Experience will patronize thy Position.

But secondly, when any of these Rich Lands shall Degenerate into Mossinesse, Rushes Coldnesse, or Over-grow with Weeds, Nettles, Hemlocks, Sow-Thistles, &c. then thy Land will need good Husbandry, and will admit of Improvement for Hemlocks, Nettles, Docks, Chick-weeds, and other common Weeds, These are as much occasioned with Fatnesse, and too much Richnesse, as from any other cause; And when from this cause, no Cure like Ploughing, for that brings profit with the Cure, and Advance in the very Reducement, <sup>Ploughing the only Cure of Weeds.</sup> ~~only~~ there is much Land of this Fatnesse; Some there is in divers parts of this Kingdome, as about Hay-Stacks, or Sheep-Pens, or places of Shade or in the Warmest parts of many Pastures, which Sheep and Cattell chuse alway for their Lieare; All which according to former Direction (in Ploughing old Restie Land) will Reduce this to Moderation in over-much Ranknesse; And especially if it bee Ploughed somewhat oftner then the other sorts of Lands, it will beare neere as many more Crops without prejudice, and no other means whatsoever will so surely, Feacibly, and Profitably, work this Effect in my Experience.

And as your Land degenerates to Mossinesse, Rushes, and Coldnesse, none will deny the wonderfull certain change and alteration thereof by Ploughing, if they should, I conceive I have sufficiently cleared it where I have discoursed of the second sort of Land at large <sup>Ploughing the only Cure against Mossiness, Rush, and Coldness.</sup> ~~in the thirteenth, fourteenth, and fifteenth Chapters, and answered severall Objections made against the same; yet one or two more remaines to be Objected; Beare with me, I say. the more herein as Coveting to beguile men of such Prejudice as possesseth most and~~

47. 45  
86



so deeply rooted, as will aske hot water to Mattock up.

**Obj.** Some say they have found the contrary, their Land Soarding of many years after, and when it hath come to Soard, it hath been neither so Rich, Thick, nor Fruitfull, and therefore Prejudiced by Ploughing.

**Ans.** All which I Eccho with thee, that possibly it may be so, and yet this may not reach too, nor in the least weaken my Propositions, which gives direction onely to three or foure Crops at most, unlesse in case of Weeds and Nettles, and too much Fattesse, I never advile to Plough thy Land so long to bring it to this, I abominate such Husbandry, neither doe I absolutely perswade to the Ploughing of all Lands without Exception, well knowing that in some parts of this Kingdome, there is some Lands so Binding, so Tough a Soarding Clay, and Cold, that it will neither Soard so thick nor quick, as others will which sorts of Lands if Rich, and Sweet, will lose Advantage by Ploughing, then any other, but as it doth degenerate and decay, use it as a Medecine to this sort of Land, and use it as according to former Rules, and lay down thy Land according to former Limitations, and question not though it Soard not so soon as other Lands, Mixed Light, and more Loosened, yet it shall both Soard so Timely, and so Richly as it shall counter-profit all thy prejudice. And for other Lands either Gravelly, Light, Warne, and Sandy, or else Mixed, and Compounded, I dare affirme some Land the first yeare may be full as good as it was before Ploughing; I have known a Winter Stubble after the Crop was Inned of some Pastures, worth as much that Winter halfe yeare, as it usually was worth any Winter upon the old Soard, and yet hath not been pastured the whole halfe yeare neither, nay some have been worth as much as the said Lands have been worth almost the whole yeare. The Eadish hath been so fruitfull, and my selfe have had the like Profits and Advantages, and have had a Wheat Stubble of my own, being the third Crop that will make good what I have Affirmed, and the very first yeare of Grasing, full as good if not better, then it was upon the old Turfe before Ploughing.

**Object.** They that cannot manage this Objection further, yet confesse and say, 'tis true for two or three of the first yeares it may possibly hold fruitfull, but it shall fall of seven, eight, or ten, or more yeares, after that it shall be worse then ever.

**Ans.** To this I can say little more then what I have said before, unlesse wherein my directions have been observed you can produce



duce mee some Experiment, and your Prejudice succeeded, otherwise you say nothing; which Experiment when you have found, I shall not question but to discover your mistake, either you are mistaken in the nature of the Land, or else in the manner or way of Husbandry and Ploughing, or else in the Method I propose in the laying of it downe to Graze, or else the Stubble you lay it downe upon, in all which if you pursue me not, expect it not, all being faciable, and any man may more certainly, and as I conceive more delightfully, worke by Rule then Randome, I say then in the ordinary course of nature, Gods blessing accompanying it, it shall but Increase and Improve for many yeares, and continue untill some of the former and aforesaid Corruptions predominate againe; Of which my selfe have had large Experiences, and can produce many Presidents, and doe but you looke into and upon much of your new layd-downe Land to Graze, which being continually Grazed doth put more prooffe in to all sorts of goods, breed Better, feed Faster, milke th Fruitfuller, then old Pasture that is Richer. I have bought the purest Mutton out of Land the third, fourth, or fifth yeare after Ploughing, being about eighteen or twenty shillings per Acre, then any Land in those parts of neare Thirty shillings an Acre hath afforded, and in reason it must needs be so, because what Grasse comes fresh, is pure without Mixture, and sweet being Young and tender, and having no corrupt Weeds or Filth to annoy it, and fruitfull, having heart and strength left in the Land to feed it, and for continuance feare it not, if Grazed, for the very Grasing will Inrich it every yeare, and Improve it untill it grow so old againe, and over-run with Mosse, Ant-hills, Rushes or other corruptions, that it requires Ploughing; and then let it have it, for the Lands and thy Advantage sake; I know other Pastures which indeed were Ploughed nine or ten Crops, and did much prejudice the Lands thereby, which I exceedingly condemne, yet this President answers this Objection, it laying now upon the fourteenth or fifteenth yeare after Ploughing, is better then ever was since Ploughing, and mends every yeare and is rich and healthfull if not more then it ever was, and would far more have abounded in fruit, if Moderation had been used.

A president of  
fattest  
Mutton  
on the  
newest  
Turfe.

Another Objection may be raised which is this, your new Ploughed Lands are more Subject to Rotting Sheep then your old Pasture.

Object.  
Answ.

I answer, usually it is so, and Experience hath proved the same; yet if you ever found any parcell of Land Husbanded according to these directions, nicely observed as aforesaid, that it was laid so high

To Rotting Sheep  
in new  
Pastures.



and round, his over Furlongs Drayned by the lower and a good Master Ditch or Trench the lowest, and Ploughed but three or foure Crops, and laid downe upon the Winter Corne Stubble, &c. You either found little danger in it for Rotting, or else no more then other Grazed Lands thereabouts was Subject to, for in great Rot yeares; indeed, many of your Cold, Soure, Rushy Pastures, Rot themselves, especially such as have either great Road-ways, Drifts, or Passages through them; yet observe these two directions following, put case it shoud Rot first or second yeares, then Stock it with Beasts, and that prevents it, or else Secondly with part Sheepe, those barren Sheep to feed, and not with a breeding Stock, and part Beasts, and very easie that you may have Grasse at pleasure, to prevent them from eating Dirt or Gravell, and this will turne thee out as much profit and secure that danger.

To prevent Rotting in new Tilled Pastures.

Separations and raising of Quick-set Hedges.

Hedge Rows a thing of delight and credit.

As for Rushes, Mosse, and Coldnesse, which doth not much offend the best sort of Land, I referre to a more proper place, and have little more to say in the Advance of this richer sort of Land, but only that in your Separations, and divisions of your greatest Pastures, you be very curious in erecting Quick-set Hedges after the manner prescribed in the Fifth Piece, and the one and twentieth Chapter, and be most carefull of preserving them from biting and treading, and well fenced from any Anoyance, and maintained with constant Weeding for two or three yeares together, all which exactly observed you shall raise upon each Lordship or Pasture, Fuell and Fire-wood sufficient to maintaine many Families, besides the Timber which may be raised in the Hedg-rows, if here and there in every Peachbee but planted an Ash, Oake, Elme, or Witchazell, all which will not only be most profitable, but most delightfull and honourable among Gallant Personages, and men of Ingenuous Spirits.

And if to this thou wouldest but Adde the Sowing of Kernels, or planting Crab-tree Stocks here and there in all your Hedge-rows, and grafting of them, and preserving them precisely till they come to Trees, how gallantly would this good Land nourish them, what a benefit might the fruit of these Trees yeeld either in Perry or Sider, to be transported into other parts, or else to releve our poore at home, of which were there plenty this deare yeare; one third part of the Mault of this Kingdome might be saved, and so that Barley be for Bread. I have only two things to informe herein.

1. The one is the great Prejudice men suffer for want of these Plantations, when they make divisions or separations in their Lands.

2. The



2. The second is when men have planted a Quickset they conceive then they have done, nor observing perhaps neither to plant it in the Upper-most and farthest Earth, nor for to Root all their Sets in the best Mould, nor when they have done to preserve it from Sheep and Cattell, nor Mould it, Weed it, Hedge it, and secure it, as it shall stand in need for three, foure, or five of the first yeares, All which were it done upon all Opportunities, No man almost in the Kingdome would either be at want of Firing, or Timber, especially were all such Fields, Marshes, Heaths, and Commons thus separated and divided, All which are feacible, and might be done with great profit to all, and Prejudice to none. I am ashamed to speak so much in these so easie and well known wayes of Husbandry, but that there is so much neglect thereof, as if men minded more their own and the Publike Confusion, and Ruine, then Profit and advancement; some will Cast Bankes and Ditches for separation, and plant no Quick at all in them, and so destroy as much as if they Quick-set it, and so lose ground to no advantage; and others will Quick-set and never Fence it, Weed, nor Mould it, and so it either perisheth at first, or else groweth dwindled, leane, and barren, not worth any thing; or else suffer it to be bitten, or eaten with Cattell, or else stifled with cutting or plashing before it is ripe or ready, that it comes to no thicknesse, growth, or fruitfulness; In all which were there but a little Patience, and Addition of a little more cost and paines, there would not bee one foot of ground more lost, but a double or treble Advantage raised upon it in few yeares, and ever after with no other Husbandry continued, but what ever brings in double profit for the charge bestowed. As in the Cutting, Plashing, Scouring of the Hedges, which payes his cost bestowed, and sometimes double and treble, and if it be a Hedge curiously preserved and cut just in his ripest season, before it begin to dye i<sup>th</sup> bottome, and have in it either good store of great Wood, or Fruit Trees planted among; The profits may arise to much more then is here spoken of.

Reasons  
why  
Quick-  
setting  
thrives no  
better.

Hedge-  
rowes a  
great help  
to the  
Kingdome  
in Firing  
& Timber.

Not pre-  
serving  
Quick-  
sets when  
planted is  
ruine to  
good Hus-  
bandry.



## CHAP. XXIV.

*Wherein I proceed to a second sort of Land somewhat inferiour to the former, wherein is discoursed the destruction of the Rush, Flag and Mare-blab altering the Coldnesse of Nature, and the preventing the standing of Winters Water, and destroying Ant, and Mole-Hills, &c. all Which are most incident to this second sort of Land.*

**T**His which I call a second sort is our midling Land, I delight in plainnesse, and avoyd all Language darkning the plain sence, or whatsoever may occasion misteriousnesse, or confusion in the reading or practice, so that this middle sort of Lands, as aforesaid, is all such Lands that are betwixt the value of twenty shillings *per Acre*, and six shillings eight pence *per Acre*, which sorts of Lands as it lyeth under a Capacity of the greatest Improvement, I have handled at large in the fore-going Discourse, especially under the foure first Pieces of Improvement.

But as it lyeth under a Capacity of a moderate and lesse Improvement, falls here to be discoursed, and although I call it a moderate Improvement, yet being well Husbanded according to the subsequent directions, may produce a double increase, and some farre more, and some lesse, but in all a considerable advantage.

Vsuall  
wayes to  
kill the  
Rush,  
Flag, or  
Mareblab.

Draining  
the most  
naturall  
way.  
Much  
Trench-  
ing repro-  
ved.

And possibly some of these Lands may be of the richest, and first sort naturally, but by some Improvidence or ill Husbandry being degenerate, are false under this second, and that where the Rush either Hard, or Soft prevaileth, or else where the Land lyeth so Flat, Cold and Moyst, that the Flag or Mare-Blab thriveth, I shall here onely apply one remedy for the removall of them all, to avoid Tedioussnesse, which is most naturall thereto, and cannot faile being punctually observed; and that is a way all men use already, though to little purpose, which is to indeavour Drayning of the same as you shall see in most mens hands, both Pasture and Common, full of Trenches, as they can hold, to their great Cost and Losse of abundance of good Land devoured in the Trenches, and Heaps and Bankes they make, and yet all is of little use, the Rush as fruitfull, and the Land as Cold as formerly in comparison. Therefore I shall advise farre lesse Trenching, and yet produce more soundnesse; I say then, as I have often said, seek out the lowest part of thy Land, and there make either a large Trench or good Ditch, or be it but the old one well scoured up

(if



(if there be one) to such a Depth as may carry away all that water or Corruption that feeds the Rush, or Flag, from every other upper Trench thou shalt see cause to make, and so ascend to any part of thy Land where these offences are, carrying with thee one Master Trench to receive all thy lesse Draynes along with thee, and there make a Drayn. (yea all thy Draynes and Trenches) so deep (for I prescribe no certain depth) as to that Cold spewing water that lyeth at the bottome of the Rush, or Flag, which alway either lyeth in a Veine of Sand, and Gravell mixed, or Gravell or Clay and stones mixed, and and thence will issue a little water, especially making thy Trench halfe a foot, or one Foot deeper; into which will soake the Rushes food, which being layd Dry and Drayned, cannot grow but needs dye, and wither, else Scripture is mistaking which saith, The Rush cannot grow without Mire.

How to find the matter that feeds the Rush, and Flag.

It is Impossible without going to the bottome to doe any good; Our own Experience shewes it, and so the depth may be two Spades graft or more, however to the bottome thou must goe, and then one Trench shall doe as much good as twenty, alway curiously observing that thy Trenches runne in the lowest parts of thy Ground, and through the Coldest and most queasiest parts of thy Lands, and for the manner of making the same, and further Direction therein, I shall referre thee back unto the second Piece, the seventh Chapter where I have spoken something to most of the aforesaid Passages, but here reminde thee because of the seasonableness thereof, and the little practice made.

But if thy Land lyes upon a Flat, or upon a Levell, and have many great wide Balkes, or which there will be no end of Trenching or Drayning, I must then assure thee it is to little purpose, yet art not left remediless for this insuing direction will not faile, and will bring profit with it to pay for curing also, which is a moderate Ploughing, Ridging all thy Balkes, raising and Landing all thy Flats, gaining them as high as possibly thou canst, Plough all and leave none, and doe this three yeares together, and observe such former Directions as are contained in the thirteenth, fourteenth, and fifteenth Chapters in the third Piece of Improvement; And by the blessing of God expect the issue promised, It will lay thy Land sound and dry, more warme and healthfull then formerly, destroy the Rush, and many other Anoyances beyond Expectation.

How to drain Land well where there is no end of Trenching.

I have been forced to be more large, and to speak twice to one thing, because of the sutablenesse thereof unto the Land, but especially because



because I cannot speak enough to make some to understand it, nor others to set upon the Practise; Therefore if thou wilt forgive this fault, I'll mend the next.

The Causes of  
Moulds  
increasing.

Want of a  
Law for  
killing of  
Moales a  
great mischief.

Pot-Trap  
chief Engine in  
Moale-  
Destruction.

Water  
best to  
destroy  
Moales.

As for the Mole-hills, so great an Enemy to the Husbandman and Grazer, there is so much Experience made for their Destruction, that almost every Ingenuous man is grown a Mould-catcher in many parts, and that is a certain way, and yet in many parts men are Sloathfull, that because all their Neighbours will not kill them, therefore they will not, so they suffer their Land one third part to be turned up; There is a Law to compell men to Ring their Swine, to prevent their Rooting, it were more Advantage to the Commonwealth, a Severe Law were made to Compell all men to keep the Mole from Rooting, for he destroyes abundance of Grasse he covers with the Mould; and Corne he throwes up by the Roots, which utterly perish, Spoyles the Mowyers worke, and Tooies, and rayseth Balkes in Meads, and Pastures, besides the work hee makes the Husbandman to spread some of them, the Cost whereof, were it but bestowed in Mould-killing would prevent the aforesaid losses.

And although I can make no new Addition to the Moales Destruction, there being so many Artists with the Mole-staffe, Tines, and Traps of severall Sorts of all which I commend the Pot-Trap set in a Bank, or Hedge row which wisely Set and Planted at all times, but especially in the naturall Season of Bucking-time about *March*, will destroy them incensibly; Yet I desire to speak a word by way of Incouragement to the Ingenuous Husbandman, not to suffer so great Dishonour to Husbandrie nor so great Prejudice to his Profit as to suffer (were it possible) one to remaine either in Tillage, Mead, or Pasture, and if thou have any Opportunity of Water to be brought over any part of the Land it will drive them out and destroy them so far as thou canst lead it after them.

*And for the Ant-hills more Pestilent and Offensive, then the former, in some Sorts of Lands.*

Ant-Hills  
Destruction.

There is but a little Addition that I can make to what I spake before of Ant-hills destruction: But to quicken thee thereto. I shall be more large, being this is the most proper place because I see them so little practised I demand what is the reason that infinite great Pastures all over the Kingdome are so over-runne with them? Unlesse men Accompt of them Vertuous, indeed some have said, they Increase the Land in quantity, and



and so they may say with shame, for so they doe, but apparently Decrease it in Quality, Worth, and Fruitfulnesse: halfe some mens Lands covered over with them, and what is the fruit of them? They beate plentie of wild Time, Mos-care, Phinnis, Mosse, and Shar-Grasse, you shall seldome see a Sheep or Beast bite them, unlesse for hunger, and then if a Sheep or Beast be cast among them, many times Destroyed. For Curing of them, I shall only direct the old Piece of banking of them, but in a more Unusuall way, and somewhat more speedily, then formerly, yet make a banking Iron or Spade, made very thin or smoth on purpose, a little more compasse or coming then your ordinary Spades are, and deeper bitted also. A Spade that worketh Smooth and Clean will further this Doubly, and then begin with the Crown or Top of thy Hills, and so divide thy upper Turfe into five or six parts, and take down the Coat or upper Turfe to the very bottom of it, the Turfe being cut as thin as possibly thou canst, so thou be sure to goe under the Roots of the Grasse, else it will not Soard so thick nor speedily, and so turne it downe round about the Coare, which taken out, and cast about the Land so deep, that when thy Turfe is turned down, even just as thou tookest it up, even so lay it down, every Turf in its place, that the whole compasse of the Hill may be rather lower then the Surface of the Ground, and but a very little, neither, yet lower it must be, because else the Ant will returne more readily againe: And secondly, because then it will receive more naturally the Water, or Moysture, which will occasion a more speedy Soarding and prevent the Pilimires returne, for the Moysture will not be indured by the old Inhabitants. And this done in the proper season, which is the end of *November*, *December*, *January*, and beginning of *February*, which seasons if thou faile, as good neglect them wholly, for thy Earth will neither have benefit of the Frost to mould it, whereby it will be spread with ease, and have some of the Winters raine to settle it into the Ground; nor the Turfe have fitting time to sodder, and worke together before the dry Weather comes to parch it, and loosen it againe, and so maist lose a great part of that Summers profit which otherwise thou mightest receive; and so herein I have no more to say, but what is the Burden of my Song, and is the only and sure Cure of most of the Maladies that occasioneth Barrennesse, which is prescribed as a soveraigne remedy (viz.) Ploughing according to former directions destroyes them all, and brings meat in the mouth with it, takes away the Phens the Mos-care, the wild Time, and Shar-grasse if used with moderation, and so I have done with this.

Ant-Hills  
good to  
destroy  
Sheep or  
Beasts.

How to  
bank Ant-  
Hills most  
speedily.

Why to  
lay them  
lower  
then the  
Sur-face  
of the  
Earth.

As for the Sow-Shuffle the chiefe and only Annoyance of all Thistles (as for other Thistles I scarce know how to ranke them among these Grand Corrupters, because the opinion of most men are, that they are most cer-



Easiest  
way to de-  
stroy the  
Sow-  
thistle.

taine symptoms of good Land as usually they are ; so are Nettles, Hem-  
blocks; Mallowses &c.) and yet I had rather they were all destroyed then  
remain upon my Lands, but because they are of lesse offence, and we have  
more greater Prejudices then these, i'lle let them passe) but for the Sow-  
thistle it is of so great offence that it destroyes all the Grasse it covers, which  
is many times a foot round, and also so easie to be destroyed, that I shall  
put the Grazier or Farmer upon no other charge or trouble, but only take  
a little Paddle-staffe, as a Walking-staffe, and give each one a chop at the  
root as he passeth by them, which will be rather a Recreation to an active  
man then a Burthen, and thus every day a few as they grow in bignesse,  
will in few dayes destroy them all ; Or else a Shepherd, or Keeper of the  
ground, as he walkes among his Cattell may easily keep them under, as  
he goes about his daily businesse ; but if neither of these opportunities hit,  
it is but hiring a Labourer a few dayes, who will run over thirty or forty  
Acres in a day, and no better or more speedy or certaine way have all my  
Experiences taught me ; and he that knows better, I intreat him to Com-  
municate it. In a dry yeare once about *May* will serve turne, but if it be  
a wet yeare, about *September* after, they had need to be done againe. A  
more certaine way I know none.

Goose  
Tansey.

For Goose Tansey, or Heare Tansey like Weed, I must needs make  
Proclamation, That he that can tell the destruction of it shall doe a very  
acceptable service ; and for my self, I should be very thankfull for the  
Communication thereof ; for I can say no more but this, Never Plough  
your Land too long, nor out of heart or strength by no means, for this  
occasioneth it to grow more thick and fruitfully ; and also load your Land  
hard with Cattell in the Spring, and when it doth grow high and strong,  
Mow it downe about the end of Midsummer Moon, or in the dry-  
est and hottest time of Summer, and other means I can prescribe none ; I  
hope some man of Experience herein will help me.

For the destruction of Fearn, I shall prescribe such poore means that  
thou wilt take offence thereat, yet however, Experience having proved the  
truth hereof, I will prescribe it, viz.

In the Spring, so soon as it begins to grow up a little above Grasse, while  
it is young and tender take a crooked Pole, or piece of Wood about six  
Foot long and let it crooke at one end like a Bow, or come like a Sith,  
with which thou maist strike off all the heads of the Fearn, as low as thou  
canst to the very ground, if thou please to make it with a little Edge thou  
maist, but it will doe without ; And this course thou must take the second  
time also, as soon as it begins to sprout and grow up againe, which may  
be within three Weekes after the first ; and thus having brused and bro-  
ken, and cut off the head the second time, thou shalt see such a destruction  
wrought



wrought as thou wilt admire, the Reason I cannot possibly conceive other then this ; This breaking, cutting, or bruising of the Stake, doth give a kind of Check or Comptrole unto the Sappe which is ascending, that it causeth it againe to recoyle into the Rush, and so suffocates and choaketh the life and spirit of it, that it descends downward and dyeth in the Earth ; This I am from a very Ingenious knowing Husband informed, which not only destroyes it the present yeare, but for the time to come also ; who hath made a more large and full Experience of the same then my selfe hath done. But in some parts of the Kingdome where Fuell is very scarce, it will be thought to be Prejudice by many to destroy it, especially upon Commons, where they reserve it for Fuell on purpose, and is a very great help to poore, for Firing ; yet whither in those very places it be so good as an Acre of Grasse I question, but there are other parts where it is little worth, and some places not worth getting, yet is the ruine and destruction of all the Grasse it groweth over, for whose sakes I have spoke thus much, and am sure in most parts it is a most a pestilent weed to burthen.

The Reason of Fearnes dying.

## CHAP. XXV.

*Treates of the destruction of Gosse, Broome ; Brakes, &c. and how to improve ordinary Lands by Planting Fruite ; and shews how to preserve Cornes from Blasting, and from Crows and Vermine, and gives a Description of the Water Persian Wheele.*

**A**S for your Gosse, Broom, Brackering, &c. which in some places where Fuell is very scarce, and the ground very bad, to prescribe a Cure is little Advantage, but where either Land is good natured Land, or Broome and Gosse of little value ; or else where men desire to Improve their Land to the utmost worth it can be raised to, It would be worth entertainment ; But to give a perfect Cure thereof without considerable cost bestowed upon it, I know none ; The best means for that, is to cut it in the hottest and dryest time of Summer when the Sappe is drawne cleane forth of the Root, and many times this will destroy it.

Easiest way to destroy Broome.

But if thou wilt be a good Improver, thou maist destroy it utterly, and Treble the value of thy Land in the doing of the same ; which is.

Excellent way to

When thou hast cut thy Broome, thy Gosse, Ling, or Brackin, it matters not at what season ; Then Plough thy Land, and make a Fallovv of it if thou please or otherwise take as many Crops as thou pleasest, more or fewer, all is one to this purpose so as thou be sure to Plough thy Roots up cleane and then Manure thy Land with what Compost thou canst

destroy Broome, Gosse, Ling, and Brackin.



When one  
load of  
Soyle doth  
as much  
good as  
two.

get, for I beleve if thy Land be made rich and fruitful, with any sort of Soyle whatsoever, it will in a great measure mend it: But without doubt, if thou either Marle it well, and afterward Muck it very well, to mollifie, and loosen, and open the Earth; or Lime it well or Mud it well, and afterward Muck it over with good Cow or Horse Dung, or any other good Soyle, as House or Street Muck, it will not only Improve it, but destroy any of these offences, or any other whatsoever that naturally ariseth from Barrenesse or Coldnesse; possibly once Manuring may not doe it, nor indeed canst thou expect so great an Improvement with so little cost; because I reckon not that any charge or cost thou expendest whilst thou hast it under Tillage, for that brings in thy charge againe in thy Crop, and so not to be put upon this Accompt; but that which thou bestowest upon thy last Crop, for the last Crop I would advise thee to Manure to purpose, and so soon as thy Crop is got, Manure it againe, for it will also bring in thy charge in the Crop of Grasse also; and againe, whilst thy Land is young and Tender; for at this season will one load of Soyle doe as much as two, when thy Land-Soard begins to grow Tough; yea as much as three, when it grows Mossie, Rushie, or Filthy.

48. This a most certaine conclusion which I have ever maintained, and proved by Practice Ever to lay on Soyle the first Winter after Corning, and at one good Soyling I have raised an Excellent sweet Soard the very first yeare full as good againe as it was before upon the old Soard: And this gallant Advancing-way shall certainly destroy both Bryars, Brackin, Fearne, (Goose-Tansie also if any thing will doe it) Gosse-Ling-Heath or any thing else whatsoever occasioneth Unfruitfulnesse, and worke an Improvement above what is Expected.

There is another Opportunity of Improving almost any sort of Sound Land, of which I gave a touch in the last Chapter, Treating of the way of Improving the best sort of Lands of which it is most capable.

Planting  
fruit Trees  
in Hedges  
is good  
Husbandry.

That is, by Planting all sorts of Fruit-Trees in all your Divisions, and Hedge-rows, where they shall not Prejudice one foot of Land, and where they may grow as prosperously as in an Orchard, if you will but wisely mannage them.

The cost or charge of this Improvement is as easy as any that can bee made if you will cast it into a Method.

Chiefe  
Piece in  
Planting  
all Fruits,

That is, when you make any Partition in your Lands, which I know you will not without a Quickset Hedge, in which in every twenty yards you may Plant a Crab-Tree Stock as well as a Thorne, only in Setting of it be carefull of Moulding it plentifully with the best Mould you can get: For that is the maine Piece in Planting as I conceive: To lay a good Foundation in every thing, prepares for a good Superstruction; So that if



if the Root be Nourished from the Earth, the Root will feed both Bough and Branch more plentifully : Therefore though thy Land bee naturally Barren, yet make that place all round about the Stock as good as thou canst, with good mellow Mould, and that which sinelleth well in Digging is Fruitfull, containing the Juyce of Vegetables already prepared.

The Tender Mellow Earth is between the two Extrems of Clay and Sand, and must needs be best : And thus having Planted thy Stock in good Earth, thy worke is halfe done, if thou doe but now and then, renew the same, that is, almost as it were, take up thy Tree again or else get well under the Roots, and so apply fresh Mould to them while they are Young and Tender : And this will cause it to Thrive without measure, and put forth a Gallant Smooth Barke, which is ever a Signe of a Thriving Tree : So that you be but a little carefull in the Choosing thy Graft, both for it Selfe and the Fruit of it and then after Grafting have but patience in preserving of it a few years, and here is all the Cost Required.

The Improvement may be wonderfull, if men would but Plant their Grounds as in many Countries they doe, as in *Worcestershire*, *Hereford*, and *Glostershire*, and great part of the County of *Kent*, they Use ; Every Hedge-row is full of Fruit, and some men Plant whole Fields over, every thirty yards asunder, whereby they reape a Couple of Harvests, One of Grasse or Hay, and another of Fruit.

How to  
reap two  
Harvests.

O that I might but be a Remembrance to this poore Nation, of the many Opportunities of Honour, Wealth and Glory, it is Capable of and that I could but perswade its Natives to take hold thereof, and deliver the Earth of those Advantages it is so big with all : Judge the rest by this One Poore Piece ; Were all men but Industrious herein, how might this Rich Fruit of the Kingdome almost relieve it in such a yeare of Scarcitie as this is like to be ; If it would not be Bread to the Poore, as it might be in some measure, I am sure it would be Drinke, and how much Barly would that preserve to Bread-Corne that is now turned to Mault : Yea, had this very yeare been but kindly and a Plentifull Fruit Yeare, what a great helpe would it have been to *England* ? And might not *England*, had it been but generally as Ingenious, as some Members of it are, wee might have had twice as much Fruit as now we have.

But certainly wee are afraid lest Plentie should be our Ruine, or else all men that Studie so much to get Estates at second hand, Each from Other, would rather strive to gain it at first hand Out of the Earth, the true Mother, in whose Bowels is more Wealth then ever will be drawn forth and enough to satisfie ( whether theirs is or no I know not ) I am sure all other



mens desires and so may be the Midwife to deliver the Earth of its Throws, it will send forth enough, if thou wilt but lay an Egge in the Sand of the Earth, 'twill bring it forth : Help the Birth, be the Man-Midwife ( who is never in use but in greatest need ) Need and Misery is likely to be greater then is Expected, Yea, I feare then hath been of many years, If God worke not above man, And man worke not now with God, by all Prudentiall means whadoever. And so much, and no more be said of Planting Fruit-trees at present, untill I have gained more Time therefore, and Experience therein.

And now I resolve to speak no more of any more wayes of Improvement here but only One word of Preserving that We have already, and 'tis but onely to Direct a word or two to keep Corn from Blasting, and Seed from Vermine.

An unfailing way to preserve Corne from Blasting.

For Blasting is one of a Kingdomes Curses, And therefore to Prescribe naturall absolute Unfailing Remedic in all Places, and at all Times, is beyond my Skill, yet one Unfailing remedy there is, as to the Removall of this, so it is the Removall of all Causes or Occasions of Barrenesse whatever, And that is Sinne, the Root that brings forth all : First brought forth the Curse, and ever since the Fruit thereof : The onely Cure thereof is Our Lord Jesus set upon the Pole, he must damne this Curse for us, and in us ; and wee by looking up to him, and our Application of himselfe to us, Mourning over him, and humbling our Soules before him ; Hereby must we be made Sensible of the Removall hereof, by which, and by no other means it is Removable.

The most usuall natural help.

But the naturall Helpes as usually are Applied, are the Soaking or Steeping Corn in thick fat Water, or Lime-water, and the Mixing-Lime or Ashes with the Corne, while Wet and Moyst, that so it may receive part of Smithon-Meale, finest of the Ashes or Lime upon it Selfe, and Cloath it Selfe with it, so as it may fall Clothed all over to the Earth, and so be covered therewith : This hath been Highly Commended of late as a great Preservation of the Puritie of the Corn, and in some parts of the Chilterne Countrey, now put into great Use so that in stead of their Usual way of Changing their Seed, which hath been an Old received Principle of great Advantage, ( and I verily believe is very good Husbandrie ) now they betake themselves hereto : Yet however, I would not Dehort, but perswade men to the other also Especially those that use to fetch their Seed out of the Chilterne into other Parts or Countries of the Fieldon, who have found great Advantage by their Constant Change of Seed.

To preserve Corn from fowls

And this is a very good means for the preserving of the Corn from Fowle, or Vermine also, which Usually devoure one part thereof before it can



can be covered, the Lime or Ashes sticking to the Corne, offends them so, and Ver-  
that they will avoid it, and though I say it Inricheth not the Corne, or mine.  
Land, no more then what that Substance of Lime or Ashes is, that cleaves  
unto it ; Yet so much it doth, and is a Help, and a very good Help to the  
bettering of it ; Yet not such a Help as some men cry it up to bee, as if it  
were as good as a Manuring, or Soyling, which usually men bestow upon  
their Land for Wheat ; So as I would have no man Under-value the least  
Opportunitie of Advantage any way , So I would not have any man de-  
ceive his Land, or himselfe, for herein consequently the Poore Common-  
Weale are beguiled also.

There is one Poore Simple Piece of my own Experience, I dare not but An unfai-  
ling Pre-  
vention of  
Crows,  
Rookes,  
or Dawes  
from corn. Communicate, for the Preserving early, or Late Sowed Corn, or for Pre-  
serving it when it begins to Corne in the Eare, from Crowes, Rookes, or  
Jack-Dawes, and this was yet never failable to me since I found it : 'Tis no  
more, but Kill a Crow or two with thy Gun if thou canst possibly upon  
the place, where this Vermin haunteth, if not, Kil one any where else, or  
if thou canst not get a Crow, do but take any black Feathers of Crow,  
Raven, Turkey, Pidgeon, or any other Fowle, but let them be as black as  
possibly they can : And then take into thy Field where they Annoy thee,  
and in the most Obvious, Plain, and Perspicuous places, make a great Hole  
of two foot over, and about twenty Inches deep, which Hole must be stuck  
round about the Edges with the longest Feathers, and some of the shortest  
layd in the Bottome of the Hole, with some part of the Carkas if thou  
have a Crow, and that Turfe that you digge out of the Hole, or else that  
Earth, being layd round upon a heap, you may stick round with Feathers  
also ; The Feathers of one Crow will dresse two or three of these Holes,  
and about halfe a dozen or eight of these Holes, will serve for a Field of  
ten or twelve Acres ; Which being done and made on the highest Ground,  
observe the Creatures, whether they will fall in that Field or no. All the  
while those Feathers remain fresh which may bee will a moneth ; Unlesse  
great store of Raine, or Weather, beat them much, and then they must bee  
Renewed once again, if thou seest need : And if they Annoy that place, or  
once fall thereabouts, I am much Deceived ; I know they will not, you  
shall see as soon as ever you have made but one Hole, and they take notice  
of it, how great offence they take if One Crow but discover it, there is  
work Enough for him to call his Fellowes to behold the Wonder, hee'll ga-  
ther all the Crowes thereabouts to behold the same, wh ch they will View The Rea-  
son of the  
Crowes  
offence  
taken,  
they with such Admiration, as will make you Admire the Creatures astonish-  
ment ; The Reason is, as I conceive, no more but an Affrightment, or Asto-  
nishment, by a New and Unexpected Object, or else from that Antipathie



they beare, or some-misgiving, or feare of being Intrapped themselves, that possesseth them, that they dare not come neare the same; Neither Gun-powder which many use to dresse a Crow withall, nor constant Shooting of them, or Killing of them, shall not have the like Effect; It cleares all the Field of every one to thy hearts desire.

I promised to give a more Fuller Description of the Persian-Wheele, or Water-Wheele, to rayse Water out of the Streame that Drives it.

And for the more Clear understanding of the Description of it, Imagine thou stoodst just before the Face of the Weele, as it is Planted in the River, to View the same as the Water Drives it; but this is of a very Plaine Wheele, and I conceive a Better and more Exact one may be Discovered.

The fuller  
Description  
of the  
Persian  
Wheeles.

1. The height of the Wheele may be betwixt fifteene foot to thirtie foot, or more if thou pleasest, according to the strength of thy Water, and the height thou desirest to rayse it, made just like an ordinary Under-shoot Mill-Wheele.

2. The breadth of the Sole or Ring of the Wheele may be also according to thy pleasure, from fifteen Inches to thirtie Inches broad, Ladeled as other Water-Wheeles are.

3. The Buckets or Kans to take up thy Water, if thy Wheele be about fifteen foot high, may be Six in number, or Eight if thou please.

4. The Buckets to such a Wheele, just so long as the Wheele is broad: The Bucket is made with four boards nayled to a bottome-board: Two sides run upon a strait Line, which are those planted to the Ring of the Wheele, and to the Ladle-board, and the other two run towards an Angle-taper, declining from twelve Inches in the But or bottome, to six Inches at the mouth one way, and from eight Inches at the bottome, to foure Inches at the mouth the other way; the mouth is open alway.

5. The Buckets fill themselves in the bottome as the Wheele goes, and so lose some of the Water in coming up, and when they come almost to the Top A Trough about three or foure foot long is Planted, as it were in the Ring of the Wheele neere the Spokes of it, and takes the rest of the Water as it delivers it out at the Top, which may be about halfe the Buckets first take up, out of which Cisterne thou mayst either in Pumps or Trenches lead thy Water, for Watering a House or Land as thou pleasest, up to that Levell; It matters not how slow thy Wheele goes, nor for any greater fall or height of Dam then will drive thy Wheele, which may bee about two foot; It is of very speciall Ule; So hast thou as Plain a Description as I can give thee, untill thou have the Figure or Forme Delineated, which will give more light to the Discoverie of it, which shall among my other Tooles be Deciphered, with a further Addition of more Ease and Exactnesse



Exactnesse in it then is here Described if God give an Opportunitie.

So I have done for present; Which Particulars, if thou hast seriously perused, although thou hast passed many things offensive possibly, which hath not been the Authors desire justly to Administer: And if any thing unjustly hath offended he is very sorry, and hopes, and verily believes, it either ariseth from want of a Cleare Representation of his meaning in more Significant Terms, or Artificiall Language to the Reader (which the Rudenesse of this Discourse would not well admit) or it may arise from the Readers mis-understanding of the Authors Sence, or misconceiving of his way of Practise, which I believe upon a second unprejudiced Consideration, will more Clearly Represent it selfe unto him: As for the Curiosity in its Composition, or Exact Method in the handling, beare with the want thereof, thou must expect no better from a Treatise of this nature, Rudely Digested out of Confused Principles and Notions, and from Experiences, most of them Compleated, but some of them in the present Practise, which when thoroughly Experimented. ( If those Weake Discoveries find Acceptance with thee, and shall appeare with the least Advantage to the Common Good ) if God but please to give Opportunitie, he may present thee with a second Part to the same Tune, Wherein he hopes to Compleat or make up the whole Art of Practicall Husbandrie, or give thee in a whole New Plantation of Old *England*; And shall further Discover or Describe, the severall Toolles or Instruments here spoke in Figures ( which I hope are understandable, as they are already Presented ) And also hold forth unto thee, the Mistery of Planting all Sorts of Fruits, with most Ease and Speediest raising them to Perfection, and to longest Continuance Fruitfull.

Causes why the Reader digests not the Discourse.

The Authors promise to mend.

As also something may be Digested after the utmost Improvement made upon thy Lands, how to make the best Improvement of thy Stock, to the greatest Advantage it is possibly able to yeeld thee and the Kingdome, or what else shall fall into my Experience, in the *Interim* as fit for Publique Discovery under the nature of Improvement. Thy loving Acceptance hereof, and Practise therein will undoubtedly Command.

And though I have in some things been too Tedious, which I could not well avoyd, yet I hope I have dealt truly with thee, I am sure in my own Experiences, I can make good unto the Eye what I have Presented to thy Eare, and what I have also seen as other mens, I have Represented them in Truth as neere as my Abilities were able to judge of them. or I able to receive their Information; Therefore I have acquainted thee where thou



The Author  
Clear, his  
Endea-  
vours are  
for Pub-  
lique,  
good.

mayst Discover Truth in all : And if I have taken any thing up, by bare Information it may faile in some Circumstances, but I hope, and do in good measure know it doth not, nor shall not faile, in the Substance thereof ; And if I shall here but make good, or Clearly hold out a Double Improvement, it will be worth Acceptance, ( to me it hath been worthy Respect and Imitation, when I could but Advance any Land, one halfe or third part, by any Information ) but if I have made out Clearly to the Kingdome, the severall Opportunities of Such Vast Improvements, that there is such Lands, and such Capacities to Advance them, as I have held forth in my Title Page, and have also as truly shewed that they have been done already, and may be done for future, with the severall Wayes, Rules, and Means, for their Accomplishments : And that also at so Rationall, Easie, and Familiar Cost and Charges, and Principally and Chiefly by the Poore Mans Labour ; who Cryes for it : and must have it, I hope I shall not be Accompted, or at least not Scandalized as a Projector, but as a Poore and Faithfull Servant to his Generation. Farewell.

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A

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